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**MEMORANDUM REPORT ARBRL-MR-02876**

**SURFACE PRESSURE MEASUREMENTS ON SLENDER  
BODIES AT ANGLE OF ATTACK  
IN SUPERSONIC FLOW**

**Robert P. Reklis  
Walter B. Sturek**

**November 1978**



**US ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND  
BALLISTIC RESEARCH LABORATORY  
ABERDEEN PROVING GROUND, MARYLAND**

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) (1cb) Measurements of wall static pressure on the surface of bodies with both secant and tangent ogive noses and with both straight tails and boattails are reported. Data were taken at three supersonic Mach numbers (2, 3, and 4) and at six angles of attack (0°, 1°, 2°, 4°, 6°, and 10°). Pressure data were obtained at ten longitudinal stations along the models. The models were rolled to obtain data at azimuthal positions every 10° about the body. Some comparisons of the data with numerical computations based on inviscid theory are given. These comparisons show good agreement at small angles of attack.		

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## I. INTRODUCTION

In order to better understand and predict the aerodynamic behavior of artillery shell, efforts are being made by BRL to calculate the effects of Magnus forces on projectiles using numerical methods. In order to obtain accurate numerical techniques it is necessary to have a solid background of experimental data which may be used for comparison.

The experiments reported here provide measurements of wall static pressure on the surface of bodies which have the general shape of artillery projectiles. These bodies lack features such as a blunt nose or a rotating band which could cause confusion in an attempt to compare experiment with theory.

Tests were run on four model configurations formed by the combination of two nose sections, a tangent-ogive-cylinder and a secant-ogive-cylinder with two tail sections, a straight tail and a conical boattail. Data were taken at three supersonic Mach numbers (2, 3, and 4) and at six angles of attack ( $0^\circ$ ,  $1^\circ$ ,  $2^\circ$ ,  $4^\circ$ ,  $6^\circ$ , and  $10^\circ$ ). Pressure data were obtained at 10 longitudinal stations along the model. The models were rolled to obtain data at various azimuthal positions, thus providing measurements of wall static pressure on a grid covering the entire surface of the body.

The purpose of this report is to provide a tabulation of the test data for further comparison and study. Some comparisons of the data with numerical computations based on inviscid theory are given. These comparisons show good agreement at small angle of attack.

## II. THE EXPERIMENT

### A. Test Facility

These tests were conducted in Supersonic Wind Tunnel No. 1 of the U.S. Army Ballistic Research Laboratory<sup>1</sup>. This is a closed circuit, continuously operating facility with a symmetric, flexible plate nozzle. The test section measures 33 cm x 38.1 cm. During a test the tunnel total pressure is maintained within  $\pm .3\%$  and the tunnel temperature is controlled to within  $\pm .5\%$ .

---

1. J. C. McMullen, "Wind Tunnel Testing Facilities at the Ballistic Research Laboratories," BRL Memorandum Report No. 1292, U.S. Army Ballistic Research Laboratory, Aberdeen Proving Ground, Maryland, July 1960. AD 244180.



## B. Test Model

The test model was designed with two interchangeable nose-body sections, one a three caliber secant-ogive-cylinder and the other a three caliber tangent-ogive-cylinder. These nose sections together with two interchangeable tail sections, one a straight tail and the other a one caliber  $7^\circ$  conical boattail, provided four model configurations. All configurations had the same total length (six calibers) and the same diameter--5.715 cm (2.25 inches). Drawings of the models are shown in Figures 1 and 2. A photograph of the configuration with a secant-ogive nose and a boattail is provided in Figure 3 to show installation in the tunnel test section. Model dimensions are listed in Table 1 with reference to the drawing in Figure 4.

Pressure data were obtained from ten pressure taps made of .056 cm I.D. monel tubing approximately 3 m long. These tubes were inserted from inside the model through holes in its surface, soldered in place, the outside surface ground and polished and the holes reopened to their original diameter. The locations of the pressure taps are shown by the crosses in Figures 1 and 2 and the locations are listed in Table 2. All data and the positions of all pressure taps are referenced to the coordinate system given in Figure 5.

## C. Experimental Procedure

The model was installed in the tunnel and the tubing and transducers were checked for leaks. After test flow conditions were established in the tunnel, the model was brought to angle of attack. The model was then rolled in steps of ten degrees. Before data were taken all pressure lines were allowed to settle. Shunt readings were taken before and after data at each angle of attack to correct for amplifier drift in the readout system.

Data were taken at Mach numbers 2, 3, and 4, at Reynolds numbers based on model length of  $6.53 \times 10^6$ ,  $6.39 \times 10^6$ , and  $6.37 \times 10^6$  respectively, with angle of attack set at 0, 1, 2, 4, 6, and 10 degrees. Sting deflections were later established from force data and are listed in Table 3. All data were taken with a boundary layer trip formed by a .65 cm band of #80 grit installed 3.8 cm from the nose.

## III. CALCULATIONS

Body surface pressures were calculated using MacCormack's predictor-corrector method using a program developed by Sanders<sup>2</sup>. Flow is assumed to be inviscid and irrotational. These assumptions

2. B. R. Sanders, "Three Dimensional, Steady, Inviscid Flow Field Calculations With Application to the Magnus Problem," PhD Dissertation, University of California, Davis, California, May 1974.



should give good agreement with experimental results at small angles of attack (less than  $6^\circ$ ). At angle of attack greater than  $6^\circ$  vortex development along the lee side of the model becomes strong enough to seriously violate the assumption of irrotational flow.

The calculations were started from a cone solution at the tip. The grid mesh used included points along rays  $10^\circ$  apart around the body and perpendicular to the body axis. Thirty (30) points were used on each ray starting on the surface and extending to a cone which enclosed the shock. The shock position was obtained automatically in the calculation due to the conservative form of the MacCormack algorithm. The distance between points longitudinally along the body was calculated to insure a stable numerical scheme.

#### IV. RESULTS

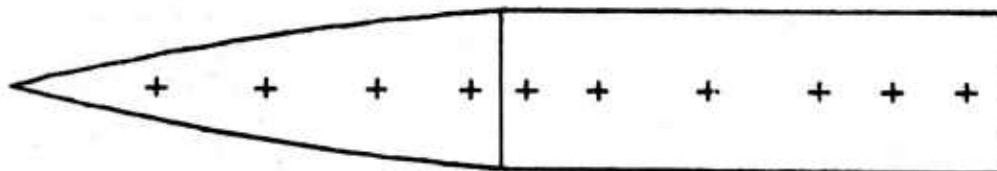
The sample comparisons between the experimental measurements and the calculation appear in Figures 6 through 9. The agreement shown in these figures is good. A discrepancy is evident along the leeward side near the tail in Figure 8 ( $6^\circ$  angle of attack). This discrepancy is caused by vortex development creating a break down in the inviscid, irrotational theory upon which the calculations are based. Discrepancies are even more evident at  $10^\circ$  angle of attack although no figure is shown.

A full tabulation of experimental results is given in Table 4. Note should be taken that angles of attack listed in this table have not been corrected for sting deflection which should be obtained from Table 3.

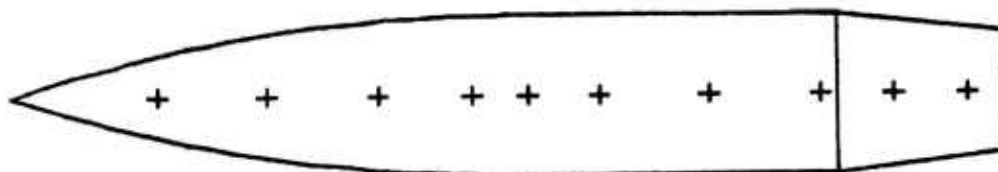
#### V. SUMMARY

Experimental measurements are presented tabulating the wall static pressure distribution on four models typical of artillery projectiles but simplified to provide easier comparison with numerical calculations. These model configurations include the combinations of two nose sections and two tail sections. Nose sections include a three caliber secant-ogive and a three caliber tangent-ogive. Tail sections include a straight tail and a one caliber, seven degree boattail.

Tests were run at Mach numbers 2, 3, and 4. Data were obtained at nominal angles of attack  $0^\circ$ ,  $1^\circ$ ,  $2^\circ$ ,  $4^\circ$ ,  $6^\circ$ , and  $10^\circ$ . Data are given at ten longitudinal stations and at  $10^\circ$  azimuthal increments. All data have been tabulated and typical comparisons showing good agreement with inviscid irrotational theory for  $\alpha < 6^\circ$  are shown.

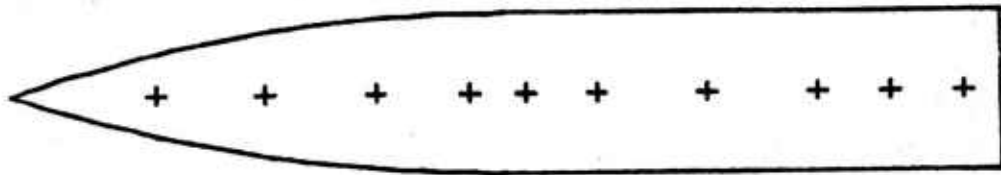


Configuration 1

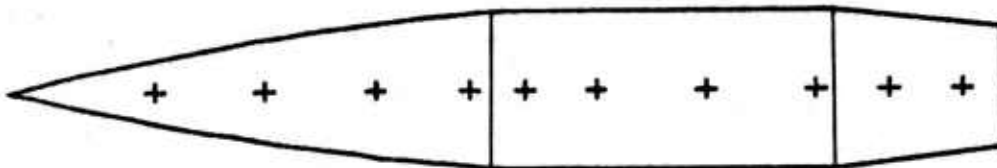


Configuration 2

Figure 1. Model Configurations 1 and 2 Showing Pressure Tap Locations



Configuration 3



Configuration 4

Figure 2. Model Configurations 3 and 4 Showing Pressure Tap Locations



Figure 3. Photograph of Model Installation in Tunnel

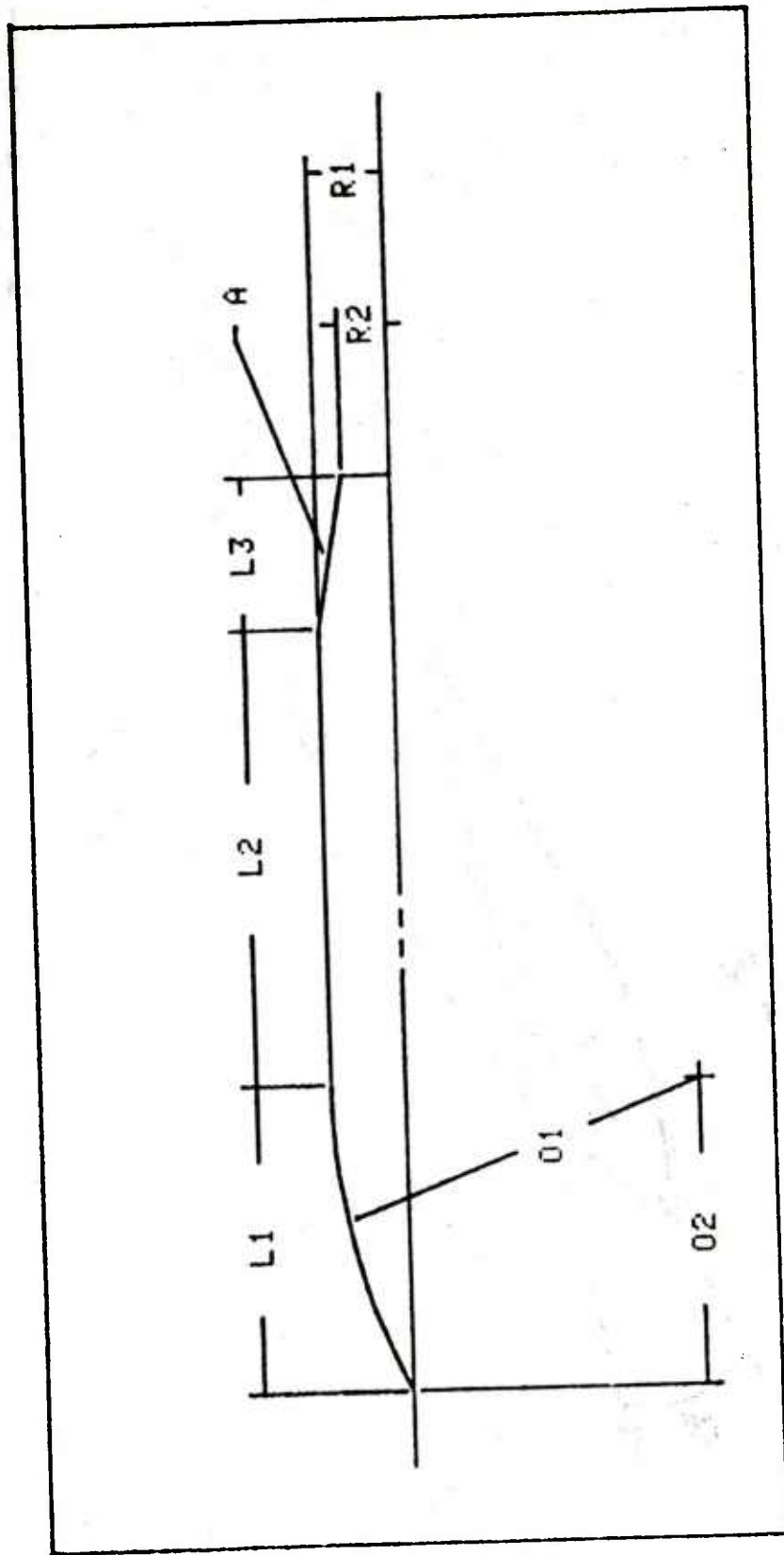


Figure 4. Model Reference Dimensions from Table 3

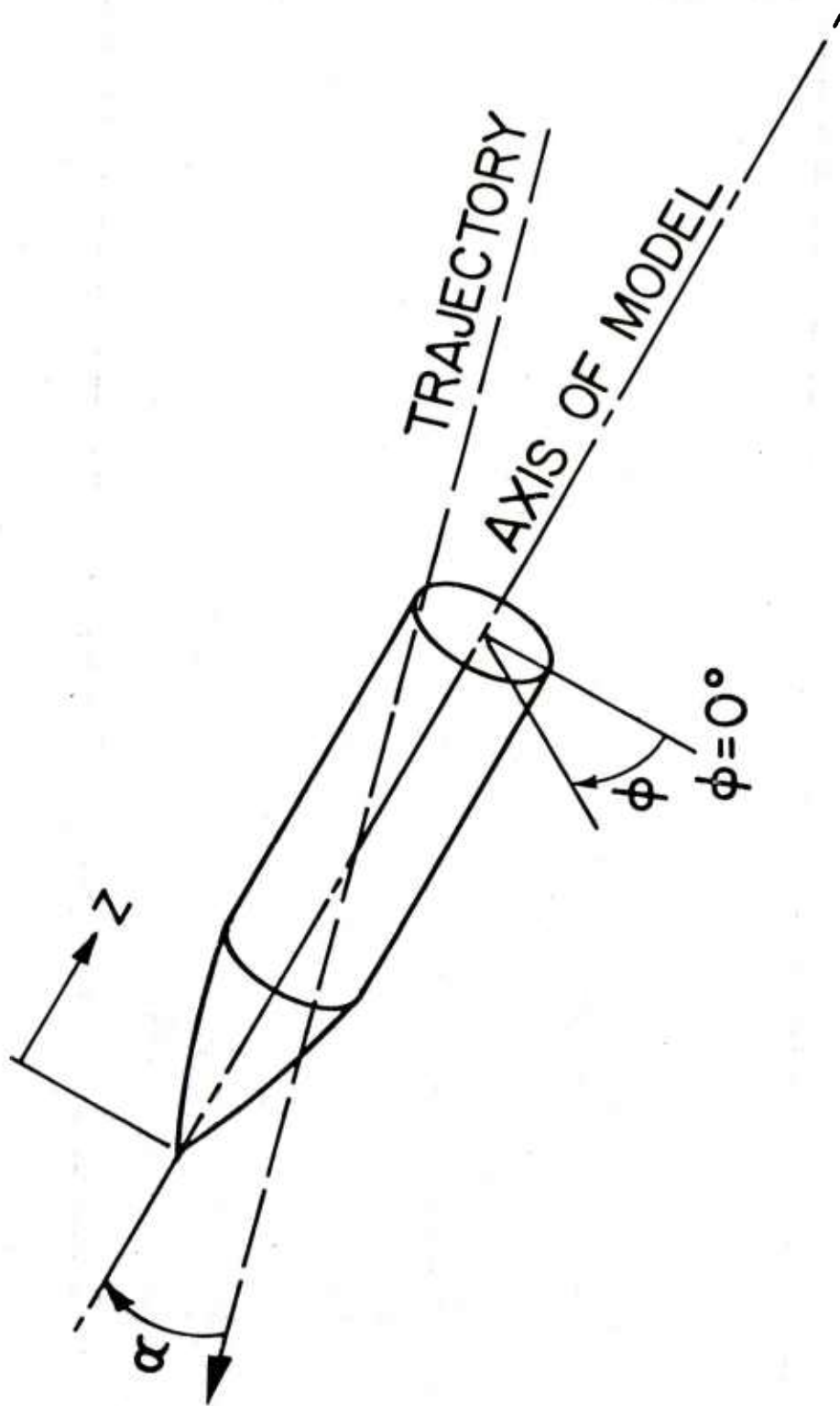


Figure 5. Coordinate System

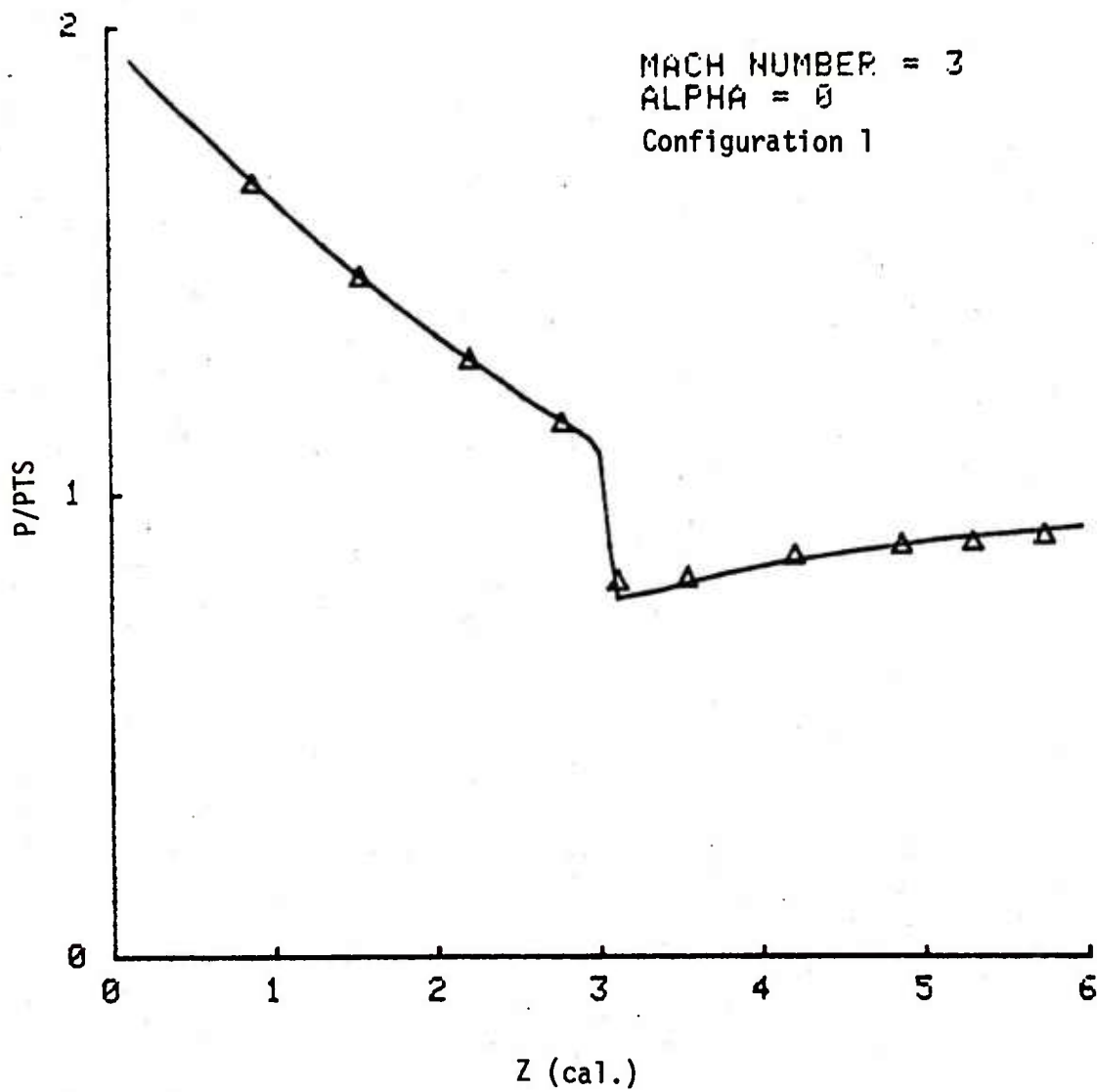


Figure 6. Comparison With Inviscid Theory for Configuration 1, Mach Number 3, Alpha 0°



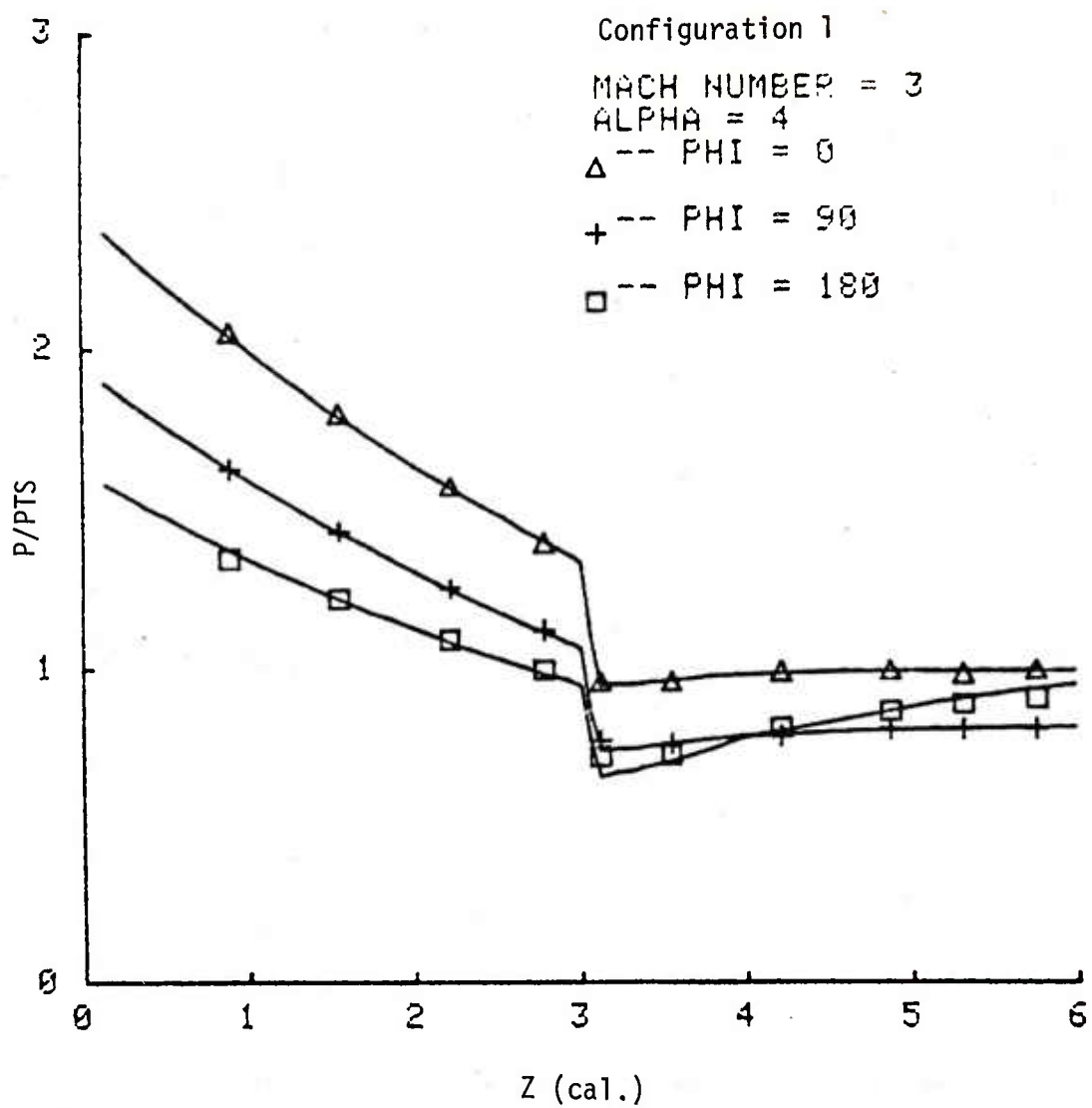


Figure 7. Comparison With Inviscid Theory for  
Configuration 1, Mach Number 3, Alpha 4°

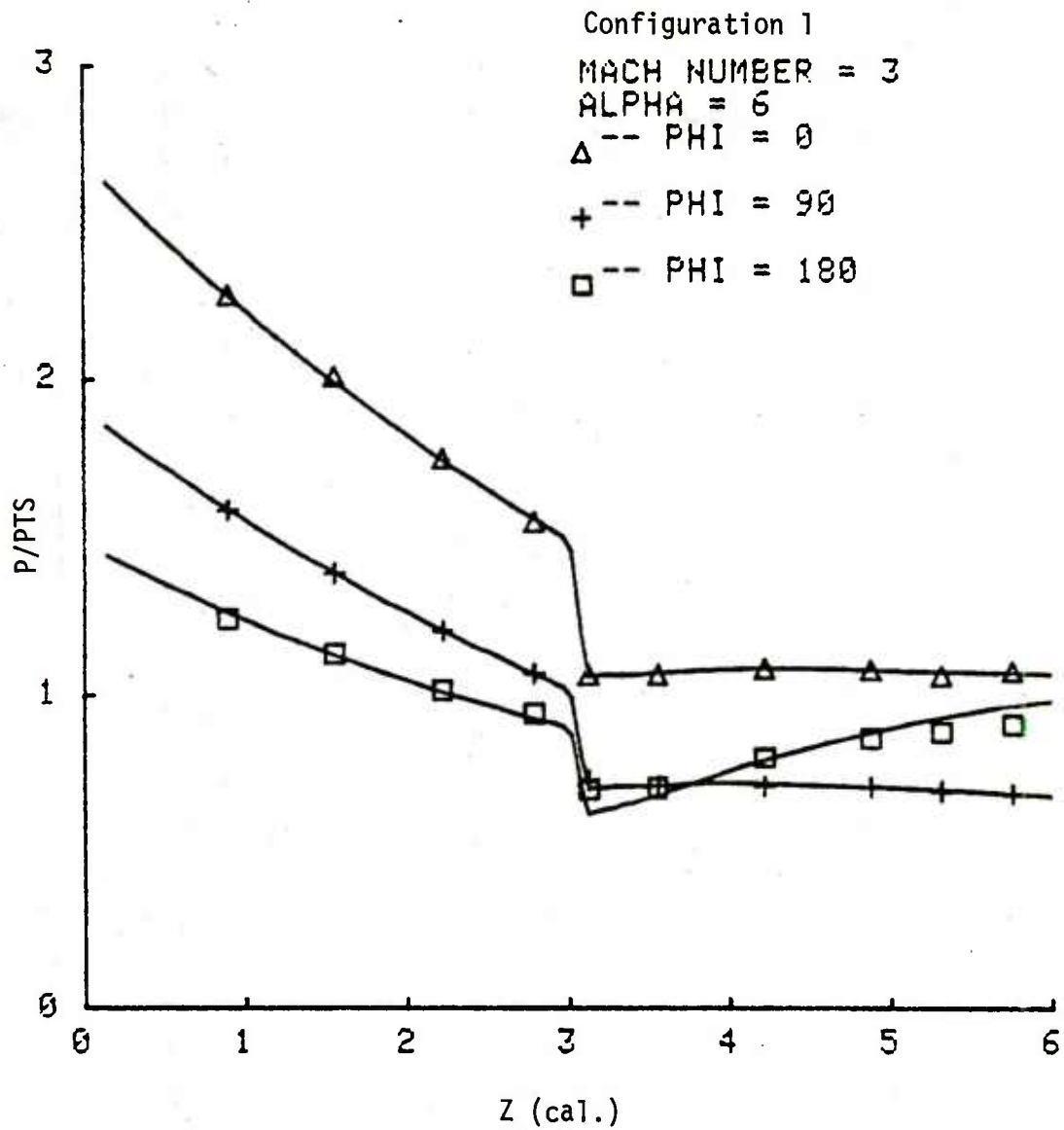


Figure 8. Comparison With Inviscid Theory for Configuration 1, Mach Number 3, Alpha 6°

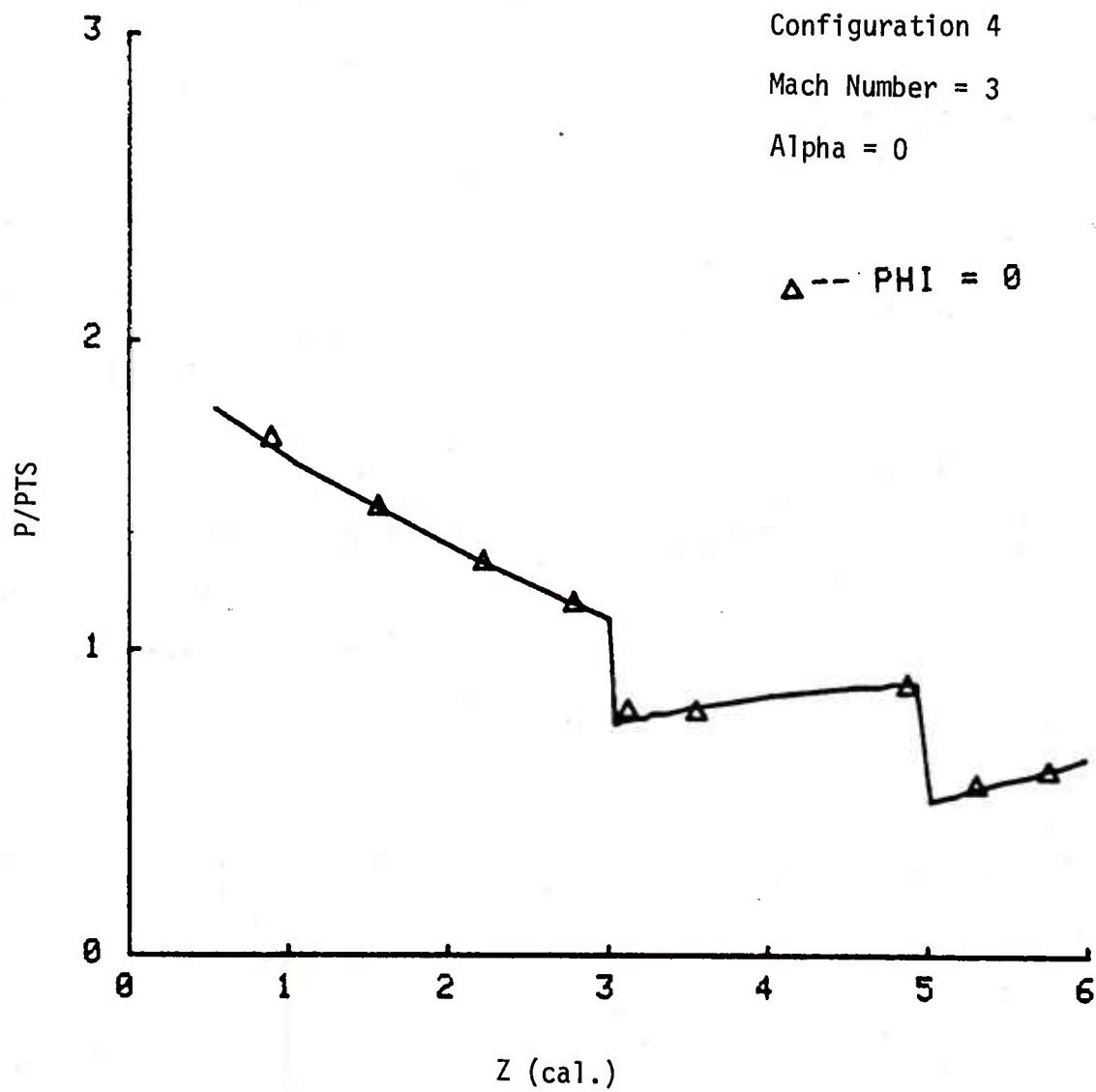


Figure 9. Comparison With Inviscid Theory for Configuration 4, Mach Number 3,  $\alpha = 0^\circ$

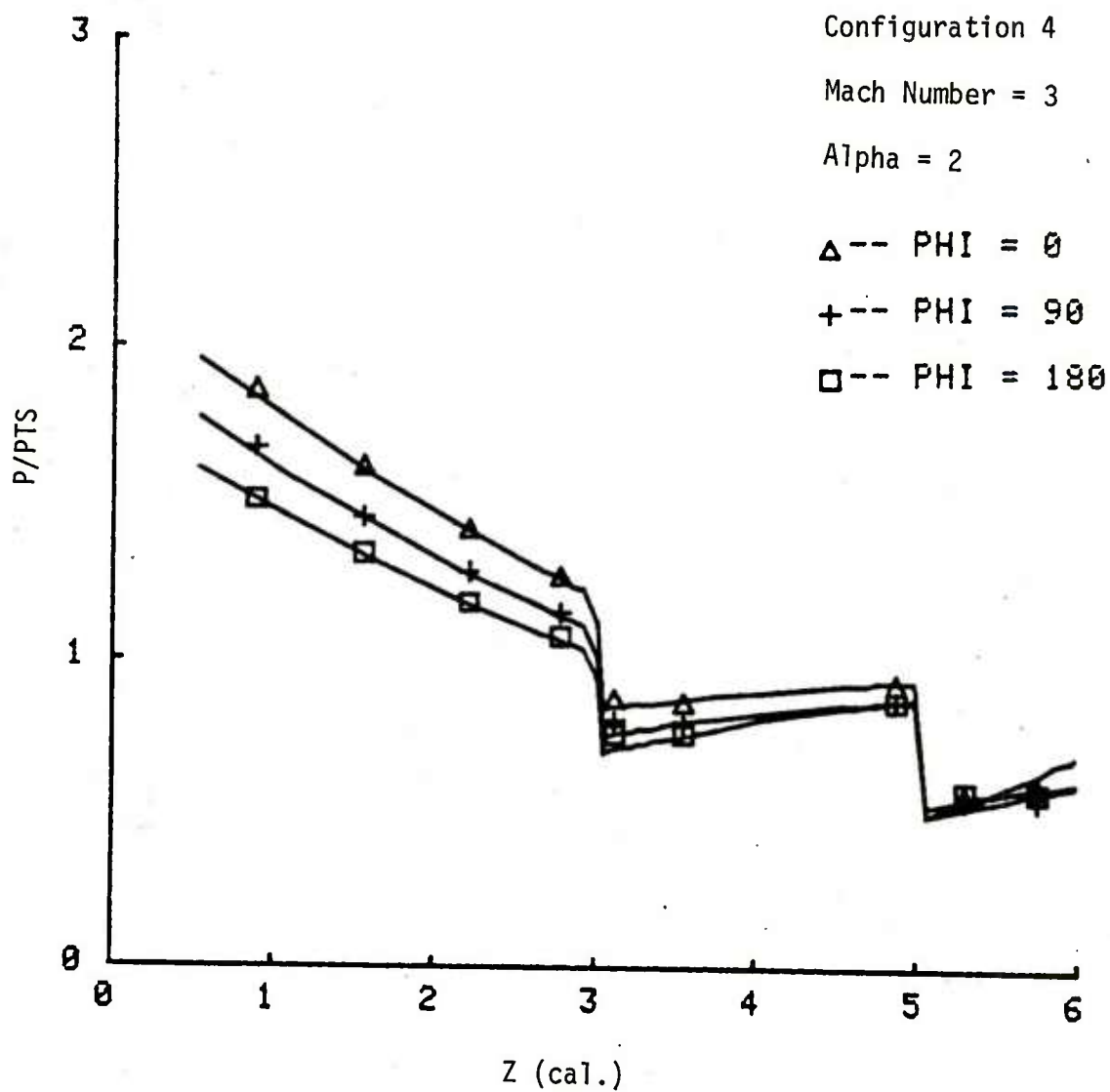


Figure 10. Comparison With Inviscid Theory for Configuration 4, Mach Number 3,  $\alpha = 2^\circ$

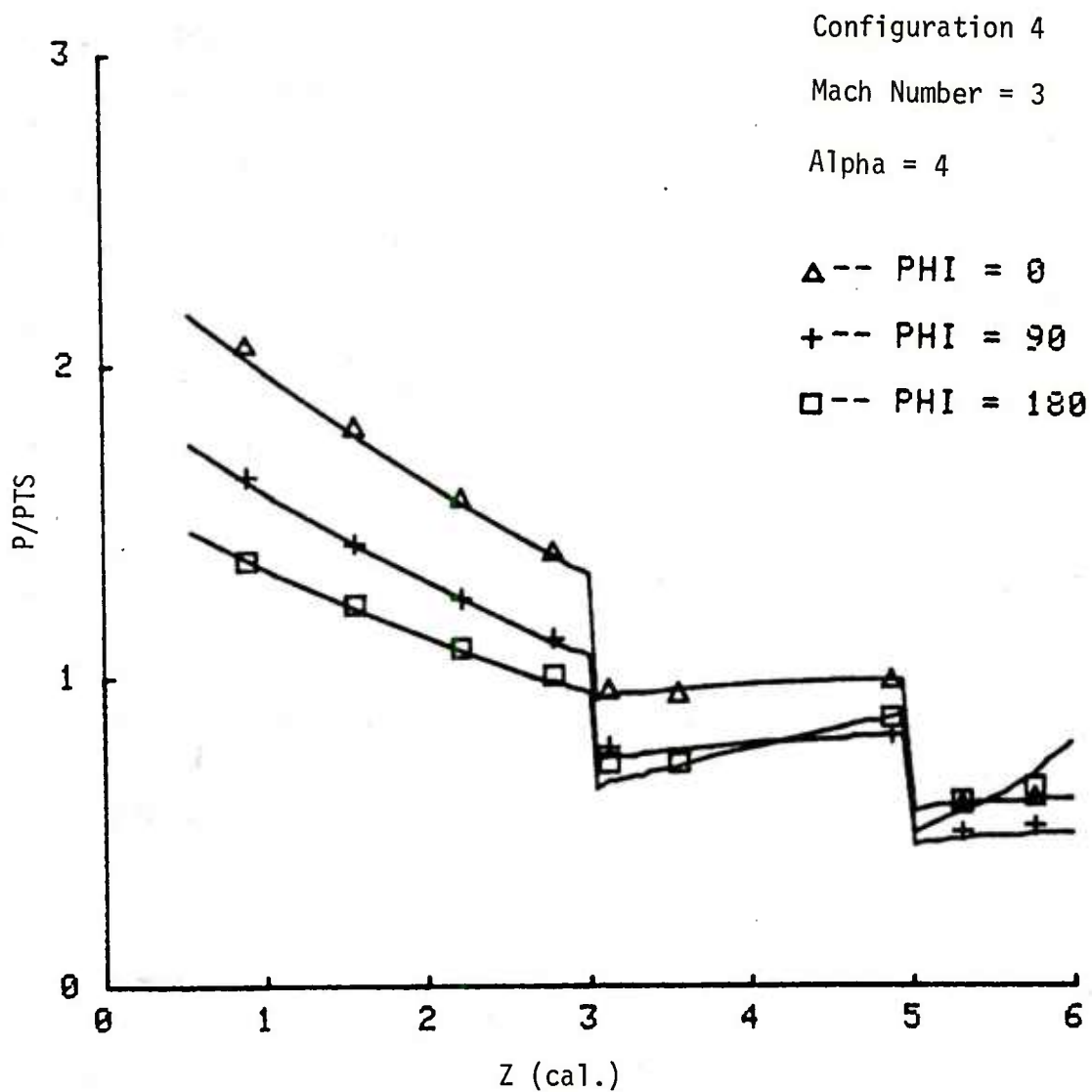


Figure 11. Comparison With Inviscid Theory for Configuration 4, Mach Number 3,  $\alpha = 4^\circ$

Table 1. Model Dimensions (Calibers)  
(Refer to Figure 3)

<u>Configuration</u>	<u>L2</u>	<u>L3</u>	<u>A</u>	<u>R2</u>	<u>01</u>	<u>02</u>
1	3	No	Boattail		18.88	4.59
2	2	1	7°	.38	9.22	3
3	3	No	Boattail		9.22	3
4	2	1	7°	.38	18.88	4.59

For all configurations L1 = 3

Table 2. Pressure Tap Locations

<u>Tap</u>	<u>Distance from Nose (Calibers)</u>
1	.89
2	1.56
3	2.22
4	2.79
5	3.13
6	3.56
7	4.22
8	4.88
9	5.32
10	5.77



Table 3. Sting Deflections (Degrees)

<u>Mach No.</u>	<u>Angle of Attack</u>						<u>P<sub>o</sub> (Pa)</u>
	<u>0°</u>	<u>1°</u>	<u>2°</u>	<u>4°</u>	<u>6°</u>	<u>10°</u>	
2	0	.02	.04	.09	.14	.25	1.84 x 10 <sup>5</sup>
3	0	.03	.06	.12	.19	.37	3.00 x 10 <sup>5</sup>
4	0	.03	.07	.14	.22	.42	5.00 x 10 <sup>5</sup>

Table 4. Data Tabulation

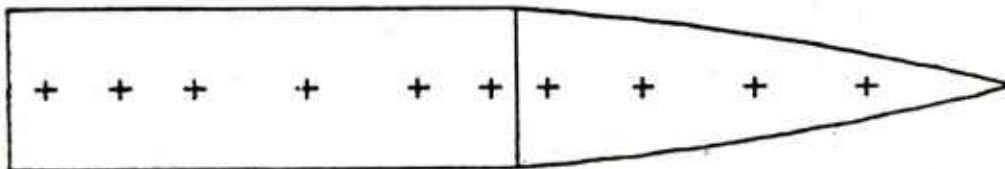
The data are tabulated for each run for different circumferential positions at fixed tunnel operating conditions and angle of attack. The nomenclature and units are indicated below.

Heading Information

CONFIG	model configuration number
ALPHA	angle of attack, degrees
REF A	area of base of model, $m^2$
REF L	model length, m
MACH NO	tunnel nozzle Mach number
REL	Reynolds number based on model length
Q	free stream dynamic pressure, $Pa \times 10^{-6}$
PTS	free stream static pressure, $Pa \times 10^{-6}$

Tabulation

PO	tunnel total pressure, $Pa \times 10^{-6}$
TO	tunnel total temperature, ° Kelvin
PTS	free stream static pressure, $Pa \times 10^{-6}$
PW1/PTS : PW6/PTS	wall pressure normalized by the free stream static pressure, the number (1-6) identifies the static pressure tap, 1 is closest to the model nose
PHI	circumferential position, degrees, 0 = wind side, 180 = lee side



Configuration 1

MODEL 987. CONFIG= 1. ALPHA= -0. REF A=0.002027 M*2REF L= 0.3084 M PO= .183 MPA										
MACH NO= 2.00 REL= 6579096. Q= .0655 MPA PTS= .2340E-C1 MPA RUN 8 TO= 307.5 K										
PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.08	1.3485	1.2494	1.1617	1.0637	.8262	.8644	.9140	.9447	.9501	.9640
9.82	1.3480	1.2498	1.1623	1.0845	.8272	.8640	.9163	.9464	.9506	.9638
19.78	1.3480	1.2493	1.1629	1.0842	.8282	.8627	.9150	.9448	.9476	.9630
29.65	1.3464	1.2492	1.1634	1.0845	.8287	.8611	.9140	.9431	.9473	.9625
39.77	1.3476	1.2497	1.1630	1.0835	.8286	.8603	.9136	.9432	.9470	.9607
49.79	1.3476	1.2495	1.1626	1.0832	.8269	.8701	.9163	.9439	.9438	.9588
59.72	1.3476	1.2482	1.1611	1.0819	.8229	.8611	.9193	.9431	.9405	.9579
69.74	1.3461	1.2481	1.1602	1.0817	.8209	.8776	.9194	.9419	.9380	.9569
79.79	1.3449	1.2466	1.1574	1.0817	.8196	.8768	.9213	.9407	.9364	.9563
89.90	1.3452	1.2451	1.1567	1.0807	.8187	.8778	.9213	.9399	.9359	.9561
99.74	1.3453	1.2452	1.1547	1.0816	.8184	.8766	.9200	.9394	.9362	.9576
109.79	1.3449	1.2449	1.1536	1.0802	.8206	.8780	.9191	.9391	.9384	.9600
119.87	1.3446	1.2433	1.1538	1.0785	.8226	.8789	.9166	.9390	.9414	.9607
129.95	1.3447	1.2427	1.1544	1.0777	.8241	.8662	.9135	.9367	.9446	.9616
139.83	1.3436	1.2425	1.1544	1.0765	.8235	.8590	.9105	.9382	.9473	.9622
149.91	1.3429	1.2429	1.1540	1.0759	.8222	.8593	.9095	.9394	.9495	.9628
159.60	1.3414	1.2419	1.1544	1.0756	.8213	.8604	.9106	.9408	.9498	.9633
169.89	1.3399	1.2412	1.1546	1.0764	.8203	.8601	.9104	.9402	.9501	.9634
179.97	1.3396	1.2405	1.1542	1.0767	.8189	.8593	.9054	.9397	.9496	.9631

MODEL 987. CONFIG= 1. ALPHA= 1. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .183 MPA  
MACH NO= 2.00 REL= 6557744. Q= .0655 MPA PTS= .2342E-01 MPA RUN 10 TO= 308.4 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-50	1.3871	1.2852	1.1929	1.1116	.8453	.8818	.9226	.9490	.9522	.9668
9.91	1.3866	1.2859	1.1933	1.1121	.8463	.8810	.9273	.9518	.9526	.9667
19.84	1.3855	1.2837	1.1918	1.1119	.8472	.8789	.9245	.9489	.9482	.9658
29.92	1.3825	1.2799	1.1899	1.1087	.8450	.8759	.9223	.9460	.9491	.9637
39.62	1.3783	1.2765	1.1857	1.1047	.8422	.8723	.9208	.9451	.9491	.9616
49.79	1.3726	1.2728	1.1797	1.1014	.8378	.8768	.9212	.9446	.9449	.9578
59.81	1.3664	1.2681	1.1753	1.0966	.8315	.8876	.9231	.9434	.9405	.9567
69.92	1.3605	1.2614	1.1697	1.0919	.8260	.8649	.9223	.9414	.9370	.9556
79.76	1.3537	1.2531	1.1628	1.0868	.8215	.8798	.9217	.9386	.9347	.9541
89.96	1.3463	1.2467	1.1568	1.0827	.8176	.8781	.9207	.9369	.9338	.9543
99.98	1.3399	1.2411	1.1502	1.0788	.8152	.8750	.9182	.9356	.9340	.9555
109.73	1.3349	1.2349	1.1454	1.0733	.8148	.8731	.9162	.9350	.9360	.9581
119.93	1.3307	1.2295	1.1411	1.0688	.8145	.8741	.9137	.9352	.9396	.9603
129.29	1.3269	1.2253	1.1382	1.0663	.8135	.8620	.9103	.9355	.9435	.9615
139.83	1.3230	1.2214	1.1343	1.0630	.8123	.8520	.9080	.9367	.9476	.9633
149.73	1.3197	1.2180	1.1333	1.0601	.8096	.8509	.9066	.9384	.9510	.9643
159.96	1.3164	1.2162	1.1319	1.0581	.8080	.8511	.9083	.9401	.9524	.9654
169.92	1.3133	1.2151	1.1312	1.0583	.8064	.8514	.9065	.9404	.9530	.9659
179.97	1.3118	1.2143	1.1307	1.0594	.8054	.8506	.9038	.9406	.9532	.9658

MODEL 987. CONFIG= 1. ALPHA= 2. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .183 MPA  
MACH NO= 2.00 REL= 6543234. Q= .0655 MPA PTS= .2340E-01 MPA RUN 11 TO= 308.7 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-14	1.4318	1.3222	1.2267	1.1405	.8681	.8997	.9320	.9598	.9566	.9710
9.85	1.4299	1.3207	1.2252	1.1397	.8677	.8988	.9398	.9584	.9560	.9702
19.81	1.4259	1.3153	1.2227	1.1369	.8666	.8957	.9343	.9537	.9497	.9683
29.89	1.4176	1.3107	1.2159	1.1311	.8623	.8906	.9296	.9496	.9503	.9644
39.89	1.4081	1.3014	1.2085	1.1233	.8561	.8832	.9254	.9471	.9490	.9609
49.76	1.3958	1.2920	1.1985	1.1163	.8485	.8816	.9229	.9442	.9433	.9545
59.78	1.3836	1.2816	1.1881	1.1064	.8386	.8894	.9217	.9406	.9364	.9509
69.86	1.3691	1.2679	1.1756	1.0968	.8296	.8877	.9196	.9364	.9308	.9481
79.73	1.3539	1.2545	1.1640	1.0870	.8213	.8769	.9155	.9317	.9266	.9451
89.84	1.3399	1.2424	1.1517	1.0784	.8144	.8726	.9124	.9285	.9247	.9451
99.92	1.3274	1.2307	1.1412	1.0698	.8095	.8675	.9092	.9271	.9249	.9472
109.88	1.3169	1.2198	1.1324	1.0612	.8066	.8641	.9068	.9270	.9283	.9508
119.69	1.3074	1.2113	1.1252	1.0547	.8046	.8634	.9054	.9282	.9328	.9549
129.83	1.3017	1.2028	1.1206	1.0500	.8026	.8527	.9031	.9309	.9395	.9588
139.92	1.2966	1.1959	1.1159	1.0449	.8009	.8429	.9026	.9347	.9456	.9616
149.91	1.2923	1.1917	1.1129	1.0412	.7983	.8404	.9031	.9383	.9511	.9644
159.93	1.2887	1.1872	1.1099	1.0395	.7956	.8404	.9049	.9407	.9539	.9663
169.80	1.2861	1.1872	1.1093	1.0389	.7943	.8410	.9037	.9429	.9555	.9678
179.97	1.2852	1.1863	1.1090	1.0393	.7943	.8405	.9021	.9435	.9559	.9685

MODEL 987. CONFIG= 1. ALPHA= 4. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .183 MPA  
MACH NO= 2.00 REL= 6529525. Q= .0654 MPA PTS= .2337E-01 MPA RUN 12 TO= 308.8 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.26	1.5201	1.4007	1.2961	1.2021	.9135	.9411	.9558	.9859	.9729	.9846
9.73	1.5187	1.3972	1.2932	1.1999	.9123	.9398	.9692	.9765	.9702	.9830
-19.90	1.5041	1.3866	1.2844	1.1915	.9063	.9329	.9575	.9677	.9586	.9770
30.02	1.4822	1.3719	1.2697	1.1788	.8955	.9204	.9451	.9586	.9550	.9660
40.01	1.4605	1.3507	1.2514	1.1619	.8799	.9040	.9336	.9465	.9447	.9543
49.97	1.4402	1.3266	1.2281	1.1426	.8642	.8880	.9200	.9346	.9309	.9392
59.96	1.4167	1.3002	1.2029	1.1202	.8450	.8651	.9081	.9213	.9156	.9258
69.98	1.3865	1.2735	1.1778	1.0982	.8265	.8409	.8984	.9092	.9020	.9153
79.73	1.3552	1.2473	1.1535	1.0766	.8098	.8604	.8864	.8995	.8926	.9085
89.96	1.3269	1.2203	1.1307	1.0584	.7946	.8474	.8792	.8922	.8876	.9066
99.92	1.3009	1.1986	1.1106	1.0413	.7852	.8390	.8741	.8902	.8892	.9120
109.91	1.2810	1.1804	1.0958	1.0274	.7787	.8330	.8723	.8933	.8972	.9221
119.84	1.2625	1.1663	1.0863	1.0178	.7757	.8318	.8748	.9010	.9096	.9337
129.86	1.2474	1.1549	1.0795	1.0109	.7742	.8295	.8792	.9118	.9236	.9444
139.92	1.2306	1.1466	1.0749	1.0076	.7734	.8211	.8861	.9242	.9373	.9537
149.91	1.2217	1.1433	1.0710	1.0062	.7735	.8196	.8936	.9346	.9489	.9615
160.02	1.2198	1.1396	1.0688	1.0056	.7725	.8220	.8987	.9423	.9572	.9674
169.92	1.2174	1.1382	1.0669	1.0050	.7732	.8244	.9011	.9475	.9615	.9721
180.06	1.2164	1.1375	1.0660	1.0046	.7731	.8262	.9011	.9500	.9627	.9742

MODEL 987. CONFIG= 1. ALPHA= 6. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .183 MPA  
MACH NO= 2.00 REL= 6557138. Q= .0655 MPA PTS= .2339E-01 MPA RUN 24 TO= 308.2 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.08	1.6270	1.4918	1.3698	1.2693	.9651	.9893	.9951	1.0235	1.0060	1.0143
9.91	1.6214	1.4853	1.3633	1.2643	.9613	.9860	1.0093	1.0083	.9999	1.0097
19.87	1.5960	1.4670	1.3461	1.2492	.9492	.9733	.9923	.9942	.9806	.9967
29.98	1.5646	1.4384	1.3205	1.2270	.9300	.9518	.9679	.9740	.9680	.9760
40.01	1.5336	1.4025	1.2871	1.1961	.9054	.9247	.9443	.9481	.9426	.9500
49.82	1.4937	1.3597	1.2496	1.1616	.8776	.8935	.9154	.9210	.9134	.9199
59.84	1.4440	1.3150	1.2078	1.1227	.8448	.8722	.8872	.8922	.8838	.8900
69.95	1.3911	1.2690	1.1643	1.0835	.8130	.8579	.8629	.8648	.8557	.8645
80.03	1.3400	1.2292	1.1245	1.0472	.7846	.8268	.8398	.8442	.8352	.8479
89.90	1.2968	1.1883	1.0896	1.0167	.7608	.8040	.8244	.8305	.8264	.8459
100.01	1.2575	1.1543	1.0616	.9920	.7454	.7919	.8167	.8289	.8321	.8603
109.97	1.2259	1.1320	1.0437	.9746	.7377	.7856	.8187	.8410	.8526	.8856
119.87	1.2061	1.1126	1.0319	.9659	.7351	.7864	.8298	.8634	.8819	.9113
129.86	1.1915	1.1039	1.0254	.9647	.7372	.7940	.8473	.8898	.9089	.9320
139.92	1.1785	1.1001	1.0230	.9655	.7426	.7958	.8674	.9136	.9291	.9446
149.91	1.1690	1.0980	1.0236	.9689	.7479	.7980	.8838	.9305	.9439	.9535
160.02	1.1649	1.0997	1.0256	.9716	.7526	.8046	.8949	.9434	.9561	.9640
170.01	1.1660	1.0984	1.0284	.9731	.7555	.8112	.9018	.9533	.9659	.9767
180.00	1.1655	1.0958	1.0275	.9732	.7555	.8161	.9041	.9575	.9700	.9837

MODEL 987. CONFIG= 1. ALPHA= 10. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .183 MPA  
 MACH NO= 2.00 REL= 6538584. Q= .0655 MPA PTS= .2338E-01 MPA RUN 25 TO= 308.7 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.11	1.8658	1.7037	1.5609	1.4463	1.1041	1.1231	1.1113	1.1276	1.1053	1.1084
9.97	1.8498	1.6923	1.5462	1.4346	1.0947	1.1132	1.1176	1.1078	1.0900	1.0966
20.02	1.8029	1.6530	1.5106	1.4021	1.0681	1.0862	1.0926	1.0767	1.0525	1.0647
30.02	1.7549	1.5977	1.4540	1.3519	1.0262	1.0408	1.0381	1.0263	1.0113	1.0143
39.98	1.6735	1.5223	1.3852	1.2858	.9724	.9830	.9801	.9672	.9526	.9514
49.88	1.5833	1.4366	1.3053	1.2104	.9104	.9172	.9136	.8956	.8784	.8761
59.96	1.4876	1.3420	1.2169	1.1263	.8429	.8463	.8400	.8194	.8004	.7929
69.95	1.3874	1.2507	1.1300	1.0431	.7762	.7882	.7699	.7468	.7238	.7133
79.82	1.2936	1.1636	1.0509	.9673	.7158	.7361	.7095	.6798	.6541	.6416
89.90	1.2115	1.0870	.9834	.9019	.6652	.6814	.6592	.6253	.6009	.5931
99.95	1.1460	1.0316	.9338	.8550	.6332	.6504	.6301	.6083	.6199	.7077
110.00	1.1019	.9964	.9036	.8336	.6209	.6440	.6401	.6844	.7519	.8109
119.99	1.0735	.9813	.8948	.8358	.6268	.6620	.7024	.7869	.8229	.8464
129.86	1.0549	.9862	.9057	.8523	.6462	.7004	.7736	.8330	.8457	.8553
140.04	1.0552	.9975	.9260	.8780	.6735	.7413	.8175	.8504	.8519	.8529
149.91	1.0618	1.0116	.9474	.9013	.7001	.7635	.8422	.8583	.8440	.8303
160.02	1.0761	1.0240	.9616	.9159	.7220	.7754	.8629	.8805	.8660	.8583
170.01	1.0828	1.0329	.9708	.9250	.7268	.7895	.8862	.9336	.9436	.9642
180.06	1.0866	1.0353	.9749	.9290	.7180	.8024	.9023	.9664	.9855	1.0127



MODEL 987. CONFIG= 1. ALPHA= -0. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .299 MPA  
MACH NO= 3.00 REL= 6425483. Q= .0512 MPA PTS= .8135E-02 MPA RUN 2 TD= 309.3 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.11	1.6802	1.4616	1.2859	1.1470	.8077	.8141	.8653	.8906	.8966	.9132
9.79	1.6795	1.4617	1.2860	1.1467	.8065	.8142	.8654	.8907	.8971	.9128
19.93	1.6779	1.4628	1.2864	1.1463	.8063	.8148	.8655	.8904	.8972	.9121
29.95	1.6777	1.4639	1.2871	1.1466	.8062	.8125	.8650	.8903	.8980	.9111
39.92	1.6770	1.4640	1.2886	1.1476	.8071	.8117	.8646	.8917	.8999	.9095
50.03	1.6769	1.4652	1.2902	1.1507	.8081	.8115	.8630	.8919	.9001	.9072
59.93	1.6763	1.4655	1.2919	1.1537	.8087	.8112	.8591	.8916	.8998	.9047
69.71	1.6760	1.4681	1.2929	1.1571	.8100	.8113	.8556	.8917	.9004	.9048
79.79	1.6758	1.4691	1.2932	1.1595	.8112	.8112	.8524	.8912	.9007	.9052
89.99	1.6751	1.4705	1.2943	1.1613	.8129	.8109	.8520	.8908	.9012	.9057
99.83	1.6720	1.4691	1.2941	1.1616	.8132	.8121	.8528	.8899	.9007	.9056
109.64	1.6696	1.4679	1.2937	1.1599	.8136	.8134	.8560	.8903	.9002	.9052
119.96	1.6668	1.4659	1.2919	1.1574	.8128	.8142	.8578	.8907	.8994	.9052
129.92	1.6651	1.4645	1.2916	1.1563	.8129	.8148	.8606	.8904	.8972	.9074
139.80	1.6632	1.4636	1.2908	1.1542	.8125	.8160	.8628	.8904	.8955	.9082
150.06	1.6613	1.4624	1.2895	1.1513	.8125	.8178	.8655	.8904	.8950	.9095
159.93	1.6598	1.4627	1.2876	1.1505	.8119	.8189	.8671	.8902	.8948	.9096
169.98	1.6598	1.4619	1.2872	1.1513	.8123	.8193	.8676	.8902	.8948	.9092

MODEL 987. CONFIG= 1. ALPHA= 1. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .298 MPA  
MACH NO= 3.00 REL= 6356049. Q= .0512 MPA PTS= .8125E-02 MPA RUN 3 TD= 311.6 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.11	1.7623	1.5358	1.3484	1.1978	.8390	.8410	.8875	.9081	.9083	.9252
9.46	1.7585	1.5354	1.3480	1.1978	.8369	.8410	.8870	.9076	.9087	.9248
19.69	1.7542	1.5330	1.3449	1.1945	.8348	.8397	.8857	.9063	.9083	.9226
29.86	1.7485	1.5286	1.3393	1.1903	.8328	.8354	.8839	.9041	.9083	.9205
39.92	1.7379	1.5195	1.3345	1.1849	.8291	.8308	.8795	.9024	.9062	.9163
49.91	1.7258	1.5080	1.3281	1.1809	.8255	.8261	.8747	.8994	.9045	.9113
59.99	1.7129	1.4979	1.3194	1.1759	.8205	.8205	.8666	.8959	.9009	.9062
69.92	1.6996	1.4897	1.3097	1.1707	.8166	.8164	.8591	.8930	.8985	.9034
79.91	1.6844	1.4777	1.3003	1.1642	.8122	.8102	.8508	.8896	.8969	.9020
89.99	1.6656	1.4649	1.2905	1.1564	.8086	.8038	.8460	.8857	.8961	.9021
100.01	1.6489	1.4519	1.2796	1.1473	.8033	.8001	.8430	.8832	.8949	.9009
109.97	1.6328	1.4393	1.2683	1.1373	.7983	.7970	.8425	.8819	.8940	.9000
119.84	1.6173	1.4258	1.2589	1.1283	.7942	.7928	.8426	.8811	.8924	.9006
129.62	1.6038	1.4159	1.2514	1.1202	.7904	.7910	.8434	.8796	.8905	.9013
140.01	1.5925	1.4087	1.2441	1.1137	.7877	.7908	.8450	.8786	.8890	.9037
149.88	1.5868	1.4022	1.2372	1.1079	.7857	.7904	.8468	.8786	.8881	.9058
159.99	1.5824	1.3972	1.2330	1.1063	.7856	.7912	.8486	.8799	.8894	.9071
169.98	1.5824	1.3925	1.2296	1.1052	.7850	.7906	.8484	.8796	.8892	.9069
179.97	1.5813	1.3923	1.2291	1.1055	.7824	.7887	.8469	.8778	.8891	.9038



MODEL 987. CONFIG= 1. ALPHA= 2. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .299 MPA  
MACH NO= 3.00 REL= 6328309. Q= .0512 MPA PTS= .8128E-02 MPA RUN 4 TD= 312.8 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.08	1.8504	1.6136	1.4160	1.2539	.8725	.6731	.9150	.9291	.9255	.9401
9.79	1.8489	1.6124	1.4136	1.2528	.8692	.8731	.9132	.9282	.9246	.9385
19.93	1.8404	1.6047	1.4059	1.2471	.8657	.8695	.9093	.9244	.9221	.9344
29.65	1.8274	1.5912	1.3956	1.2369	.8595	.8614	.9036	.9183	.9178	.9277
39.95	1.8051	1.5755	1.3810	1.2245	.8502	.8513	.8944	.9114	.9109	.9194
49.94	1.7811	1.5539	1.3637	1.2126	.8408	.8415	.8837	.9035	.9039	.9097
60.05	1.7488	1.5292	1.3424	1.1967	.8287	.8286	.8689	.8924	.8946	.8969
69.95	1.7164	1.5074	1.3238	1.1826	.8208	.8191	.8572	.8853	.8874	.8901
79.73	1.6861	1.4824	1.3036	1.1659	.8100	.8066	.8433	.8764	.8817	.8841
89.72	1.6551	1.4572	1.2832	1.1495	.8008	.7962	.8337	.8705	.8784	.8823
100.04	1.6237	1.4310	1.2615	1.1312	.7900	.7854	.8270	.8656	.8767	.8810
109.91	1.5966	1.4071	1.2422	1.1140	.7811	.7791	.8245	.8640	.8769	.8825
119.60	1.5718	1.3864	1.2253	1.0982	.7733	.7724	.8242	.8642	.8770	.8852
129.95	1.5508	1.3694	1.2121	1.0868	.7681	.7696	.8248	.8653	.8790	.8888
140.04	1.5308	1.3560	1.1990	1.0776	.7644	.7683	.8275	.8662	.8808	.8943
150.00	1.5164	1.3441	1.1902	1.0704	.7620	.7683	.8303	.8680	.8821	.8994
159.93	1.5098	1.3345	1.1828	1.0666	.7614	.7673	.8328	.8705	.8851	.9026
169.92	1.5101	1.3315	1.1792	1.0648	.7605	.7672	.8332	.8717	.8863	.9031
179.97	1.5121	1.3305	1.1785	1.0641	.7552	.7634	.8301	.8674	.8887	.8972

MODEL 987. CONFIG= 1. ALPHA= 4. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .298 MPA  
MACH NO= 3.00 REL= 6307603. Q= .0511 MPA PTS= .8121E-02 MPA RUN 5 TD= 313.3 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.08	2.0531	1.7995	1.5724	1.3909	.9588	.9586	.9888	.9915	.9800	.9919
9.61	2.0469	1.7930	1.5634	1.3856	.9536	.9545	.9841	.9877	.9762	.9874
19.78	2.0293	1.7725	1.5442	1.3692	.9426	.9431	.9726	.9759	.9662	.9744
29.80	1.9895	1.7381	1.5164	1.3447	.9258	.9243	.9544	.9566	.9486	.9545
40.01	1.9351	1.6979	1.4810	1.3152	.9055	.9012	.9306	.9345	.9265	.9299
49.73	1.8768	1.6506	1.4390	1.2812	.8795	.8751	.9030	.9085	.9005	.9011
59.93	1.8127	1.5952	1.3929	1.2403	.8517	.8463	.8715	.8782	.8716	.8691
70.04	1.7465	1.5357	1.3432	1.1972	.8241	.8156	.8372	.8483	.8426	.8379
80.03	1.6849	1.4799	1.2959	1.1572	.7996	.7885	.8097	.8248	.8203	.8174
89.57	1.6293	1.4282	1.2512	1.1184	.7747	.7631	.7868	.8070	.8074	.8080
100.01	1.5722	1.3771	1.2080	1.0816	.7534	.7423	.7714	.7984	.8051	.8092
109.97	1.5192	1.3344	1.1726	1.0493	.7366	.7275	.7658	.8000	.8125	.8214
119.87	1.4772	1.2995	1.1458	1.0273	.7253	.7205	.7702	.8106	.8271	.8392
129.68	1.4467	1.2706	1.1244	1.0109	.7198	.7209	.7787	.8234	.8430	.8583
139.92	1.4220	1.2488	1.1092	1.0021	.7190	.7239	.7899	.8368	.8577	.8741
149.91	1.3978	1.2343	1.0987	.9980	.7206	.7269	.8007	.8488	.8692	.8886
159.93	1.3687	1.2249	1.0920	.9961	.7237	.7301	.8086	.8583	.8828	.9050
169.80	1.3502	1.2212	1.0886	.9962	.7264	.7320	.8137	.8638	.8847	.9052
179.97	1.3456	1.2201	1.0883	.9971	.7248	.7321	.8133	.8634	.8866	.9036

MODEL 987. CONFIG= 1. ALPHA= 6. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .298 MPA  
MACH NO= 3.00 REL= 6469080. Q= .0512 MPA PTS= .8130E-02 MPA RUN 6 TD= 307.8 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.08	2.2689	2.0125	1.7473	1.5465	1.0617	1.0618	1.0805	1.0768	1.0575	1.0694
9.94	2.2569	1.9950	1.7340	1.5346	1.0536	1.0525	1.0707	1.0671	1.0487	1.0593
19.75	2.2170	1.9583	1.7027	1.5079	1.0343	1.0317	1.0499	1.0456	1.0272	1.0365
29.83	2.1445	1.9027	1.6548	1.4653	1.0057	.9990	1.0176	1.0114	.9948	1.0015
39.83	2.0648	1.8328	1.5935	1.4120	.9652	.9571	.9734	.9672	.9509	.9591
49.73	1.9791	1.7498	1.5209	1.3474	.9196	.9090	.9210	.9144	.8968	.8943
60.02	1.8797	1.6522	1.4369	1.2715	.8672	.8534	.8593	.8521	.8357	.8276
70.01	1.7795	1.5565	1.3544	1.1991	.8191	.8014	.8050	.7956	.7793	.7678
79.91	1.6812	1.4668	1.2766	1.1316	.7748	.7551	.7567	.7491	.7323	.7176
89.90	1.5853	1.3828	1.2015	1.0650	.7296	.7099	.7118	.7069	.6918	.6835
99.59	1.5060	1.3096	1.1385	1.0084	.6947	.6735	.6835	.6873	.6829	.6882
109.88	1.4306	1.2467	1.0879	.9657	.6713	.6568	.6753	.6943	.7045	.7230
119.59	1.3746	1.1979	1.0518	.9394	.6590	.6502	.6876	.7261	.7479	.7736
129.83	1.3328	1.1631	1.0289	.9257	.6588	.6594	.7157	.7672	.7930	.8169
139.92	1.3070	1.1440	1.0178	.9239	.6677	.6742	.7437	.7989	.8222	.8418
150.06	1.2746	1.1338	1.0141	.9287	.6811	.6886	.7681	.8222	.8428	.8596
159.90	1.2507	1.1284	1.0128	.9337	.6920	.6977	.7848	.8392	.8571	.8745
169.56	1.2401	1.1271	1.0144	.9394	.6982	.7041	.7977	.8537	.8734	.8953
179.94	1.2390	1.1277	1.0154	.9412	.6990	.7062	.8014	.8587	.8793	.9031

MODEL 987. CONFIG= 1. ALPHA= 10. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .299 MPA  
MACH NO= 3.00 REL= 6416168. Q= .0512 MPA PTS= .8129E-02 MPA RUN 7 TD= 309.5 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.26	2.7698	2.5052	2.1816	1.9399	1.3357	1.3301	1.3364	1.3195	1.2893	1.2961
9.91	2.7421	2.4711	2.1558	1.9172	1.3209	1.3126	1.3172	1.3010	1.2712	1.2775
19.90	2.6410	2.3943	2.0898	1.8592	1.2778	1.2665	1.2704	1.2530	1.2241	1.2294
29.92	2.5242	2.2803	1.9896	1.7666	1.2118	1.1972	1.1980	1.1783	1.1524	1.1544
39.86	2.3923	2.1332	1.8619	1.6494	1.1292	1.1115	1.1058	1.0841	1.0589	1.0564
49.91	2.1953	1.9591	1.7082	1.5126	1.0323	1.0106	.9977	.9754	.9492	.9420
59.57	2.0071	1.7826	1.5513	1.3706	.9337	.9080	.8878	.8637	.8378	.8247
69.65	1.8182	1.5959	1.3847	1.2185	.8239	.7950	.7689	.7373	.7125	.6928
79.85	1.6257	1.4158	1.2233	1.0727	.7215	.6896	.6575	.6214	.5956	.5727
89.93	1.4567	1.2533	1.0822	.9425	.6314	.5958	.5576	.5174	.4914	.4704
99.83	1.3048	1.1187	.9611	.8345	.5600	.5192	.4785	.4396	.4197	.4253
109.91	1.1837	1.0131	.8668	.7485	.5010	.4623	.4276	.4373	.4980	.5633
119.81	1.1155	.9538	.8187	.7132	.4857	.4533	.4475	.5329	.5827	.6064
129.68	1.0796	.9298	.8099	.7205	.5072	.5023	.5634	.6092	.6106	.6071
139.95	1.0643	.9353	.8345	.7633	.5577	.5698	.6316	.6483	.6309	.6023
149.94	1.0586	.9543	.8684	.8092	.6042	.6137	.6640	.6696	.6465	.6109
159.81	1.0592	.9718	.8915	.8372	.6358	.6370	.7000	.7003	.6769	.6603
169.95	1.0618	.9833	.9047	.8516	.6459	.6522	.7389	.7823	.7959	.8173
179.91	1.0679	.9865	.9085	.8561	.6409	.6568	.7617	.8333	.8661	.9058

MODEL 987. CONFIG= 1. ALPHA= 0. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .498 MPA  
MACH NO= 4.00 REL= 6401484. Q= .0367 MPA PTS= .3284E-02 MPA RUN 16 TD= 307.6 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.14	2.0715	1.7826	1.5008	1.2971	.8664	.8035	.8502	.8745	.8862	.8980
9.73	2.0720	1.7790	1.4993	1.2966	.8661	.8022	.8477	.8743	.8837	.8956
19.83	2.0761	1.7835	1.5038	1.3019	.8689	.8050	.8495	.8761	.8845	.8963
29.89	2.0779	1.7840	1.5068	1.3049	.8703	.8022	.8443	.8743	.8837	.8935
39.98	2.0779	1.7860	1.5100	1.3132	.8744	.8011	.8410	.8732	.8826	.8935
49.67	2.0748	1.7894	1.5128	1.3169	.8751	.8030	.8351	.8684	.8790	.8910
59.90	2.0784	1.7986	1.5178	1.3195	.8772	.8050	.8350	.8673	.8800	.8910
69.74	2.0754	1.8021	1.5190	1.3164	.8769	.8057	.8334	.8636	.8775	.8897
79.85	2.0711	1.8013	1.5204	1.3150	.8776	.8078	.8357	.8624	.8751	.8915
89.75	2.0757	1.8093	1.5240	1.3161	.8770	.8070	.8393	.8649	.8777	.8951
100.01	2.0748	1.8085	1.5228	1.3139	.8756	.8054	.8399	.8688	.8816	.8968
109.97	2.0705	1.8049	1.5169	1.3114	.8722	.8019	.8396	.8740	.8846	.8975
119.96	2.0670	1.7989	1.5105	1.3093	.8711	.7998	.8407	.8773	.8866	.8986
129.89	2.0623	1.7898	1.4975	1.3021	.8670	.7987	.8452	.8807	.8890	.9007
139.80	2.0557	1.7812	1.4895	1.2954	.8657	.7974	.8460	.8804	.8887	.8994
149.88	2.0542	1.7739	1.4856	1.2895	.8655	.8014	.8502	.8813	.8896	.9024
159.90	2.0525	1.7714	1.4800	1.2832	.8638	.8029	.8517	.8805	.8889	.9016
169.95	2.0506	1.7688	1.4778	1.2803	.8635	.8038	.8527	.8792	.8864	.9013
180.00	2.0543	1.7699	1.4799	1.2832	.8651	.8043	.8533	.8809	.8892	.9051

MODEL 987. CONFIG= 1. ALPHA= 1. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .498 MPA  
MACH NO= 4.00 REL= 6413095. Q= .0367 MPA PTS= .3274E-02 MPA RUN 17 TD= 307.0 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
.01	2.2227	1.9018	1.6082	1.3874	.9194	.8526	.8915	.9068	.9137	.9226
9.97	2.2301	1.8970	1.6028	1.3832	.9179	.8489	.8876	.9052	.9099	.9190
19.69	2.2312	1.8920	1.6004	1.3839	.9184	.8461	.8836	.9035	.9092	.9163
30.05	2.2178	1.8886	1.5977	1.3843	.9187	.8442	.8794	.9027	.9073	.9134
40.01	2.1948	1.8791	1.5912	1.3825	.9174	.8399	.8738	.8993	.9050	.9111
50.00	2.1591	1.8657	1.5791	1.3730	.9080	.8333	.8613	.8870	.8949	.9015
59.96	2.1265	1.8531	1.5667	1.3601	.9026	.8266	.8533	.8769	.8880	.8969
69.80	2.0966	1.8407	1.5543	1.3451	.8946	.8205	.8446	.8704	.8817	.8919
79.85	2.0687	1.8219	1.5373	1.3288	.8834	.8110	.8392	.8617	.8741	.8902
89.96	2.0411	1.8015	1.5216	1.3106	.8714	.8027	.8305	.8565	.8700	.8850
100.04	2.0139	1.7764	1.4990	1.2910	.8590	.7899	.8238	.8520	.8678	.8839
110.03	1.9942	1.7537	1.4798	1.2777	.8519	.7814	.8184	.8544	.8690	.8841
119.84	1.9745	1.7279	1.4557	1.2620	.8418	.7710	.8164	.8569	.8704	.8832
129.92	1.9559	1.7050	1.4312	1.2469	.8331	.7642	.8160	.8575	.8710	.8838
139.89	1.9429	1.6839	1.4135	1.2308	.8269	.7619	.8181	.8596	.8721	.8848
150.03	1.9330	1.6655	1.4004	1.2174	.8231	.7613	.8185	.8578	.8713	.8852
160.05	1.9340	1.6614	1.3962	1.2140	.8230	.7652	.8216	.8567	.8734	.8893
169.71	1.9270	1.6534	1.3902	1.2065	.8210	.7643	.8206	.8577	.8724	.8883
179.97	1.9238	1.6506	1.3868	1.2054	.8134	.7577	.8114	.8475	.8720	.8794

MODEL 987. CONFIG= 1. ALPHA= 2. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .497 MPA  
MACH NO= 4.00 REL= 6401939. Q= .0367 MPA PTS= .3281E-02 MPA RUN 18 TO= 307.2 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-26	2.4303	2.0379	1.7232	1.4905	.9795	.9103	.9390	.9520	.9534	.9759
9.70	2.4259	2.0311	1.7168	1.4846	.9767	.9054	.9350	.9480	.9483	.9719
19.84	2.4146	2.0205	1.7089	1.4788	.9732	.8994	.9266	.9408	.9433	.9630
29.98	2.3895	2.0021	1.6914	1.4693	.9648	.8886	.9108	.9307	.9321	.9523
39.92	2.3557	1.9743	1.6682	1.4522	.9511	.8744	.8960	.9172	.9207	.9403
49.97	2.2941	1.9409	1.6420	1.4292	.9355	.8593	.8780	.8994	.9029	.9232
59.96	2.2266	1.9104	1.6134	1.4018	.9213	.8447	.8616	.8820	.8889	.9077
69.86	2.1685	1.8690	1.5797	1.3685	.9026	.8285	.8425	.8653	.8733	.8948
79.94	2.1147	1.8251	1.5444	1.3335	.8811	.8094	.8270	.8478	.8591	.8823
90.02	2.0619	1.7791	1.5059	1.2977	.8580	.7877	.8099	.8342	.8476	.8755
100.04	2.0094	1.7354	1.4677	1.2673	.8392	.7693	.7963	.8262	.8407	.8741
109.79	1.9585	1.6920	1.4297	1.2381	.8226	.7542	.7861	.8239	.8417	.8740
119.87	1.9105	1.6541	1.3989	1.2179	.8109	.7432	.7824	.8257	.8434	.8746
130.02	1.8639	1.6134	1.3665	1.1928	.7987	.7325	.7813	.8302	.8469	.8791
139.89	1.8363	1.5859	1.3462	1.1754	.7923	.7301	.7844	.8355	.8533	.8853
150.00	1.8035	1.5579	1.3226	1.1541	.7836	.7267	.7841	.8350	.8561	.8877
160.02	1.7909	1.5381	1.3088	1.1440	.7817	.7279	.7853	.8351	.8573	.8911
169.68	1.7897	1.5321	1.2991	1.1378	.7806	.7268	.7865	.8362	.8584	.8942
180.00	1.7915	1.5316	1.2992	1.1376	.7789	.7259	.7833	.8343	.8599	.8926

MODEL 987. CONFIG= 1. ALPHA= 4. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .497 MPA  
MACH NO= 4.00 REL= 6384996. Q= .0367 MPA PTS= .3275E-02 MPA RUN 19 TO= 309.0 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-05	2.7868	2.3487	1.9808	1.7148	1.1165	1.0436	1.0570	1.0588	1.0515	1.0656
9.97	2.7640	2.3312	1.9643	1.6979	1.1029	1.0296	1.0401	1.0410	1.0337	1.0464
19.84	2.7228	2.2902	1.9292	1.6696	1.0855	1.0074	1.0158	1.0181	1.0130	1.0223
29.89	2.6718	2.2517	1.8998	1.6456	1.0678	.9912	.9956	1.0003	.9951	1.0031
40.01	2.5900	2.1860	1.8439	1.5991	1.0366	.9588	.9584	.9646	.9605	.9657
49.76	2.5038	2.1005	1.7732	1.5342	.9921	.9136	.9124	.9157	.9127	.9189
59.96	2.4013	2.0231	1.7076	1.4755	.9596	.8833	.8807	.8822	.8802	.8856
69.92	2.2800	1.9258	1.6215	1.3930	.9035	.8262	.8245	.8255	.8246	.8312
79.94	2.1256	1.8193	1.5325	1.3116	.8539	.7790	.7808	.7800	.7823	.7918
90.05	2.0061	1.7365	1.4644	1.2578	.8212	.7484	.7534	.7562	.7596	.7742
99.83	1.9246	1.6501	1.3917	1.1973	.7856	.7136	.7259	.7389	.7456	.7693
109.76	1.8365	1.5660	1.3242	1.1419	.7543	.6854	.7110	.7375	.7507	.7827
119.90	1.7430	1.4852	1.2612	1.0919	.7324	.6681	.7085	.7515	.7714	.8068
129.65	1.6900	1.4451	1.2300	1.0712	.7262	.6639	.7141	.7648	.7880	.8226
139.86	1.6428	1.4019	1.2003	1.0520	.7210	.6658	.7262	.7823	.8089	.8460
149.73	1.6114	1.3671	1.1752	1.0373	.7201	.6715	.7376	.8002	.8279	.8640
160.02	1.5884	1.3505	1.1626	1.0304	.7224	.6749	.7434	.8082	.8370	.8728
169.86	1.5811	1.3433	1.1570	1.0302	.7264	.6790	.7478	.8146	.8446	.8811
179.97	1.5783	1.3450	1.1598	1.0359	.7361	.6858	.7548	.8206	.8494	.8857

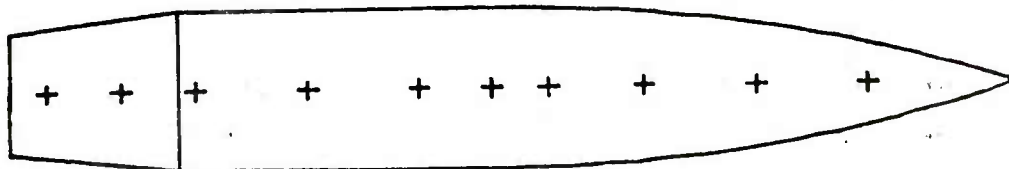


MODEL 987. CONFIG= 1. ALPHA= 6. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .497 MPA  
MACH NO= 4.00 REL= 6400984. Q= .0367 MPA PTS= .3276E-02 MPA RUN 21 TO= 307.7 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-14	3.1650	2.7201	2.2907	1.9863	1.2934	1.2152	1.2216	1.2084	1.1914	1.1933
9.97	3.1296	2.7000	2.2742	1.9714	1.2856	1.2092	1.2120	1.2011	1.1819	1.1831
19.84	3.0744	2.6419	2.2282	1.9335	1.2604	1.1832	1.1815	1.1709	1.1528	1.1531
29.80	2.9767	2.5526	2.1530	1.8681	1.2153	1.1357	1.1298	1.1209	1.1034	1.1008
39.86	2.8384	2.4438	2.0557	1.7848	1.1613	1.0796	1.0667	1.0596	1.0435	1.0367
49.97	2.6849	2.3020	1.9363	1.6723	1.0807	.9981	.9805	.9677	.9537	.9433
59.99	2.5244	2.1572	1.8174	1.5645	1.0146	.9339	.9158	.9003	.8851	.8755
69.98	2.3502	1.9947	1.6814	1.4390	.9296	.8479	.8293	.8093	.7939	.7828
80.00	2.1791	1.8409	1.5528	1.3271	.8624	.7794	.7623	.7386	.7231	.7108
90.05	1.9630	1.6948	1.4272	1.2201	.7931	.7119	.6974	.6711	.6545	.6439
99.80	1.8369	1.5633	1.3190	1.1297	.7358	.6567	.6454	.6207	.6073	.6009
110.00	1.7076	1.4461	1.2169	1.0409	.6824	.6077	.6053	.5977	.5975	.6190
119.99	1.5949	1.3571	1.1482	.9876	.6573	.5871	.5983	.6106	.6270	.6662
129.86	1.5159	1.2958	1.1015	.9552	.6474	.5864	.6277	.6695	.6981	.7397
139.89	1.4544	1.2464	1.0679	.9385	.6535	.6045	.6644	.7234	.7499	.7830
149.94	1.4285	1.2213	1.0528	.9374	.6638	.6195	.6867	.7487	.7742	.8031
159.90	1.4042	1.2097	1.0478	.9429	.6764	.6325	.7070	.7722	.7954	.8245
169.86	1.3817	1.2065	1.0456	.9461	.6819	.6383	.7175	.7890	.8156	.8491
179.91	1.3767	1.2043	1.0450	.9465	.6726	.6285	.7118	.7869	.8257	.8641

MODEL 987. CONFIG= 1. ALPHA= 10. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .498 MPA  
MACH NO= 4.00 REL= 6288818. Q= .0367 MPA PTS= .3271E-02 MPA RUN 22 TO= 309.5 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-02	4.0763	3.5895	3.0512	2.6530	1.7385	1.6620	1.6404	1.6129	1.5795	1.5671
9.97	4.0363	3.5475	3.0127	2.6199	1.7138	1.6384	1.6122	1.5850	1.5516	1.5594
19.99	3.8915	3.4179	2.9072	2.5290	1.6484	1.5727	1.5392	1.5127	1.4805	1.4817
30.02	3.6898	3.2239	2.7448	2.3854	1.5524	1.4720	1.4306	1.4063	1.3742	1.3693
40.01	3.4397	2.9815	2.5352	2.1987	1.4225	1.3404	1.2976	1.2680	1.2404	1.2264
49.97	3.1226	2.6971	2.3074	1.9946	1.3008	1.2206	1.1758	1.1485	1.1199	1.1025
59.99	2.7899	2.3822	2.0362	1.7447	1.1173	1.0355	.9847	.9428	.9199	.8950
69.86	2.4857	2.0957	1.7930	1.5329	.9826	.9011	.8543	.8071	.7655	.7620
79.97	2.1504	1.7957	1.5269	1.2888	.8098	.7250	.6770	.6261	.6068	.5844
89.93	1.8644	1.5518	1.3075	1.0987	.6881	.6029	.5617	.5151	.5003	.4878
99.95	1.5851	1.3006	1.0811	.8919	.5558	.4785	.4496	.4308	.4326	.4451
110.00	1.3591	1.1149	.9170	.7560	.4873	.4265	.4187	.4300	.4550	.4804
120.02	1.1881	.9861	.8135	.6847	.4651	.4281	.4428	.4660	.4788	.4946
129.77	1.1202	.9513	.7930	.6815	.4750	.4458	.4601	.4754	.4827	.4910
140.01	1.0880	.9439	.7983	.7022	.4990	.4612	.4695	.4846	.4787	.4787
149.97	1.1008	.9579	.8444	.7733	.5705	.5279	.5392	.5271	.4880	.4707
159.96	1.1099	.9636	.8571	.7896	.5847	.5427	.5791	.5645	.5121	.4885
169.92	1.1094	.9813	.8803	.8129	.5996	.5719	.6421	.7020	.7201	.7364
180.18	1.1123	.9867	.8874	.8209	.6006	.5773	.6588	.7438	.7851	.8239



Configuration 2

MODEL 987. CONFIG= 2. ALPHA= 0. REF A=0.002027 M**2 REF L= 0.3084 M PO= .183 MPA										
MACH NO= 2.00 REL= 6558525. 0= .0656 MPA PTS= .2341E-01 MPA RUN 27 TO= 308.3 K										
PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.08	1.4577	1.2146	1.0230	.8984	.8632	.8924	.9284	.9563	.7008	.7601
9.94	1.4574	1.2143	1.0234	.8992	.8643	.8928	.9308	.9577	.7014	.7599
19.96	1.4568	1.2127	1.0232	.8988	.8647	.8915	.9299	.9570	.6996	.7590
29.86	1.4563	1.2127	1.0232	.8988	.8651	.8892	.9284	.9551	.6984	.7580
39.98	1.4571	1.2134	1.0240	.8964	.8659	.8883	.9280	.9546	.6984	.7568
49.97	1.4568	1.2133	1.0238	.8985	.8634	.8974	.9299	.9549	.6954	.7553
59.84	1.4568	1.2119	1.0222	.8974	.8595	.9097	.9328	.9544	.6928	.7547
69.95	1.4570	1.2104	1.0215	.8969	.8566	.9050	.9336	.9528	.6910	.7549
80.03	1.4567	1.2099	1.0205	.8969	.8552	.9025	.9351	.9511	.6893	.7550
90.02	1.4564	1.2079	1.0185	.8969	.8543	.9036	.9353	.9503	.6886	.7555
100.01	1.4558	1.2089	1.0170	.8969	.8547	.9030	.9342	.9500	.6893	.7565
109.88	1.4545	1.2086	1.0150	.8957	.8567	.9041	.9326	.9497	.6912	.7580
119.90	1.4543	1.2076	1.0151	.8946	.8591	.9085	.9311	.9503	.6941	.7592
130.02	1.4541	1.2088	1.0155	.8941	.8606	.8966	.9278	.9508	.6967	.7598
139.92	1.4551	1.2061	1.0161	.8934	.8605	.8881	.9250	.9517	.6988	.7610
149.91	1.4553	1.2060	1.0161	.8928	.8592	.8878	.9237	.9522	.7006	.7621
160.02	1.4545	1.2049	1.0161	.8921	.8585	.8884	.9254	.9529	.7014	.7627
170.01	1.4549	1.2052	1.0168	.8924	.8579	.8889	.9250	.9528	.7020	.7635
179.97	1.4552	1.2057	1.0168	.8937	.8563	.8887	.9214	.9526	.7015	.7636

MODEL 987. CONFIG= 2. ALPHA= 1. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .183 MPA  
MACH NO= 2.00 REL= 6524915. Q= .0655 MPA PTS= .2340E-01 MPA RUN 28 TO= 309.3 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.14	1.5014	1.2523	1.0482	.9151	.8765	.9030	.9290	.9555	.6946	.7454
9.97	1.4988	1.2524	1.0482	.9156	.8775	.9028	.9343	.9560	.6952	.7449
20.05	1.4949	1.2497	1.0475	.9150	.8777	.9011	.9317	.9543	.6930	.7439
29.83	1.4904	1.2488	1.0459	.9129	.8764	.8985	.9297	.9530	.6925	.7435
39.92	1.4845	1.2444	1.0427	.9097	.8737	.8951	.9279	.9519	.6927	.7427
49.88	1.4781	1.2409	1.0386	.9068	.8699	.8985	.9287	.9520	.6902	.7414
59.99	1.4708	1.2340	1.0332	.9035	.8643	.9099	.9309	.9510	.6877	.7417
69.98	1.4639	1.2279	1.0285	.8997	.8581	.9096	.9315	.9494	.6861	.7427
80.06	1.4553	1.2204	1.0224	.8961	.8539	.9017	.9309	.9468	.6845	.7445
89.87	1.4481	1.2125	1.0166	.8928	.8513	.9001	.9307	.9456	.6845	.7478
100.07	1.4408	1.2072	1.0108	.8901	.8496	.8990	.9290	.9449	.6857	.7516
109.94	1.4329	1.2003	1.0055	.8861	.8496	.8987	.9271	.9446	.6888	.7560
119.90	1.4262	1.1957	1.0022	.8827	.8500	.9018	.9256	.9452	.6927	.7603
129.80	1.4207	1.1924	1.0003	.8811	.8503	.8919	.9229	.9469	.6974	.7640
140.04	1.4162	1.1867	.9985	.8783	.8490	.8817	.9207	.9486	.7014	.7674
150.06	1.4137	1.1836	.9969	.8767	.8473	.8800	.9200	.9509	.7052	.7713
159.96	1.4105	1.1788	.9950	.8749	.8452	.8802	.9221	.9523	.7071	.7734
170.04	1.4109	1.1777	.9952	.8752	.8441	.8810	.9207	.9535	.7083	.7751
180.00	1.4131	1.1784	.9948	.8759	.8431	.8807	.9190	.9541	.7087	.7760

MODEL 987. CONFIG= 2. ALPHA= 2. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .183 MPA  
MACH NO= 2.00 REL= 6520122. Q= .0655 MPA PTS= .2336E-01 MPA RUN 29 TO= 309.2 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.26	1.5500	1.2852	1.0754	.9374	.8946	.9160	.9348	.9608	.6920	.7349
9.94	1.5449	1.2845	1.0749	.9376	.8947	.9157	.9343	.9592	.6920	.7344
19.87	1.5374	1.2813	1.0727	.9351	.8934	.9136	.9389	.9571	.6891	.7334
30.02	1.5293	1.2749	1.0680	.9310	.8901	.9091	.9344	.9544	.6883	.7316
40.01	1.5191	1.2666	1.0615	.9248	.8839	.9023	.9311	.9516	.6872	.7306
50.06	1.5064	1.2570	1.0523	.9190	.8773	.8990	.9283	.9496	.6843	.7283
59.99	1.4925	1.2448	1.0434	.9115	.8683	.9070	.9277	.9464	.6807	.7276
69.95	1.4783	1.2316	1.0327	.9036	.8592	.9096	.9271	.9433	.6781	.7288
80.03	1.4640	1.2177	1.0220	.8964	.8519	.8976	.9233	.9398	.6762	.7319
89.96	1.4487	1.2055	1.0117	.8894	.8465	.8923	.9222	.9371	.6764	.7369
100.01	1.4335	1.1921	1.0016	.8833	.8425	.8901	.9202	.9366	.6783	.7440
110.06	1.4186	1.1800	.9928	.8767	.8406	.8888	.9185	.9367	.6825	.7520
120.08	1.4047	1.1712	.9864	.8716	.8403	.8910	.9177	.9385	.6889	.7603
130.08	1.3931	1.1635	.9831	.8689	.8395	.8839	.9165	.9423	.6959	.7677
140.01	1.3832	1.1563	.9803	.8665	.8390	.8751	.9172	.9467	.7026	.7744
150.12	1.3750	1.1510	.9772	.8641	.8373	.8723	.9181	.9509	.7085	.7603
160.02	1.3698	1.1467	.9751	.8631	.8353	.8732	.9205	.9534	.7122	.7846
169.98	1.3699	1.1436	.9735	.8634	.8350	.8747	.9204	.9562	.7144	.7878
179.97	1.3727	1.1446	.9733	.8640	.8346	.8754	.9194	.9575	.7158	.7894



MODEL 987. CONFIG= 2. ALPHA= 4. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .183 MPA  
MACH NO= 2.00 REL= 6525520. Q= .0654 MPA PTS= .2338E-01 MPA RUN 30 TO= 309.2 K

PH1	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.05	1.6493	1.3690	1.1379	.9817	.9345	.9502	.9532	.9767	.6945	.7216
9.85	1.6419	1.3672	1.1372	.9801	.9338	.9494	.9637	.9719	.6920	.7203
19.87	1.6282	1.3573	1.1300	.9740	.9280	.9436	.9573	.9664	.6863	.7166
29.86	1.6122	1.3442	1.1180	.9644	.9183	.9323	.9452	.9582	.6823	.7104
39.95	1.5918	1.3260	1.1017	.9506	.9032	.9163	.9339	.9465	.6745	.7036
49.94	1.5652	1.3022	1.0822	.9349	.8879	.8994	.9205	.9360	.6663	.6953
59.93	1.5341	1.2750	1.0598	.9175	.8696	.8937	.9086	.9240	.6578	.6885
69.74	1.5012	1.2482	1.0376	.9000	.8516	.8933	.9002	.9133	.6501	.6845
80.03	1.4667	1.2204	1.0150	.8816	.8347	.8752	.8902	.9052	.6458	.6871
89.93	1.4349	1.1920	.9943	.8672	.8229	.8617	.8847	.8999	.6451	.6963
99.92	1.4040	1.1679	.9760	.8546	.8143	.8565	.8824	.8994	.6497	.7133
109.97	1.3761	1.1480	.9620	.8442	.8105	.8547	.8832	.9038	.6598	.7339
119.99	1.3521	1.1319	.9525	.8380	.8105	.8579	.8879	.9126	.6742	.7535
129.80	1.3340	1.1193	.9461	.8354	.8119	.8614	.8946	.9242	.6898	.7704
140.01	1.3203	1.1091	.9422	.8349	.8139	.8572	.9032	.9372	.7046	.7842
149.85	1.3035	1.1016	.9385	.8353	.8158	.8570	.9108	.9473	.7152	.7943
159.99	1.2928	1.0965	.9362	.8362	.8166	.8609	.9174	.9552	.7226	.8027
169.89	1.2870	1.0953	.9357	.8369	.8175	.8657	.9210	.9611	.7268	.8092
179.97	1.2867	1.0939	.9345	.8371	.8177	.8687	.9216	.9637	.7283	.8122

MODEL 987. CONFIG= 2. ALPHA= 6. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .183 MPA  
MACH NO= 2.00 REL= 6537720. Q= .0655 MPA PTS= .2343E-01 MPA RUN 33 TO= 309.2 K

PH1	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.26	1.7706	1.4588	1.2062	1.0378	.9823	.9965	.9873	1.0059	.7068	.7207
9.82	1.7579	1.4553	1.2034	1.0354	.9793	.9936	.9983	.9980	.7014	.7180
19.81	1.7412	1.4373	1.1905	1.0240	.9677	.9823	.9882	.9859	.6894	.7082
29.89	1.7154	1.4130	1.1694	1.0065	.9502	.9615	.9633	.9663	.6799	.6933
39.98	1.6746	1.3795	1.1412	.9809	.9255	.9347	.9384	.9432	.6620	.6758
49.94	1.6195	1.3405	1.1063	.9520	.8958	.9027	.9102	.9155	.6415	.6549
59.84	1.5672	1.2971	1.0696	.9205	.8645	.8758	.8814	.8891	.6212	.6351
69.86	1.5133	1.2505	1.0320	.8882	.8330	.8580	.8564	.8634	.6051	.6203
79.91	1.4580	1.2026	.9948	.8566	.8046	.8387	.8383	.8442	.5930	.6152
89.93	1.4062	1.1625	.9617	.8322	.7821	.8135	.8216	.8353	.5910	.6297
99.86	1.3600	1.1260	.9360	.8117	.7679	.8030	.8186	.8365	.6003	.6669
109.88	1.3209	1.0976	.9169	.7989	.7630	.8023	.8258	.8511	.6223	.7116
119.90	1.2928	1.0748	.9041	.7939	.7657	.8101	.8419	.8744	.6531	.7450
129.77	1.2718	1.0590	.8977	.7956	.7734	.8247	.8632	.9006	.6832	.7669
139.95	1.2537	1.0497	.8957	.8011	.7834	.8339	.8849	.9233	.7039	.7811
149.97	1.2400	1.0441	.8965	.8077	.7919	.8418	.9017	.9389	.7157	.7907
159.87	1.2322	1.0417	.8988	.8135	.7994	.8513	.9134	.9509	.7236	.8019
169.95	1.2272	1.0401	.9008	.8168	.8038	.8603	.9215	.9614	.7300	.8161
179.91	1.2269	1.0403	.9010	.8174	.8051	.8663	.9253	.9677	.7340	.8236

MODEL 987. CONFIG= 2. ALPHA= 10. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .183 MPA  
 MACH NO= 2.00 REL= 6525513. Q= .0654 MPA PTS= .2338E-01 MPA RUN 34 TO= 309.1 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-17	2.0350	1.6756	1.3808	1.1895	1.1170	1.1261	1.1019	1.1037	.7721	.7689
9.91	2.0158	1.6672	1.3721	1.1833	1.1109	1.1176	1.1045	1.0954	.7617	.7615
19.96	1.9838	1.6338	1.3432	1.1574	1.0843	1.0917	1.0807	1.0658	.7374	.7366
29.89	1.9180	1.5802	1.2988	1.1167	1.0441	1.0486	1.0318	1.0195	.7062	.6982
39.95	1.8314	1.5133	1.2398	1.0622	.9896	.9902	.9730	.9610	.6602	.6491
49.91	1.7360	1.4326	1.1704	.9992	.9256	.9205	.9049	.8911	.6064	.5912
60.02	1.6327	1.3438	1.0934	.9290	.8575	.8458	.8295	.8121	.5483	.5286
69.92	1.5324	1.2528	1.0165	.8571	.7881	.7792	.7559	.7369	.4910	.4652
79.91	1.4351	1.1661	.9419	.7899	.7239	.7222	.6885	.6674	.4369	.4071
89.99	1.3398	1.0887	.8769	.7323	.6694	.6721	.6364	.6086	.3958	.3029
100.01	1.2589	1.0227	.8257	.6900	.6322	.6340	.6025	.6029	.4561	.6156
109.97	1.1965	.9746	.7929	.6684	.6203	.6292	.6331	.7241	.5798	.6428
119.93	1.1491	.9471	.7798	.6721	.6351	.6659	.7289	.8077	.6434	.6575
129.80	1.1221	.9367	.7852	.6937	.6708	.7276	.8007	.8380	.6611	.6865
140.01	1.1073	.9392	.8025	.7262	.7147	.7813	.8350	.8499	.6604	.6825
150.00	1.1063	.9504	.8236	.7556	.7482	.8088	.8504	.8500	.6406	.6539
159.96	1.1106	.9598	.8412	.7757	.7695	.8274	.8669	.8604	.6441	.6729
170.01	1.1137	.9671	.8523	.7886	.7833	.8485	.9027	.9342	.6835	.7753
180.00	1.1136	.9702	.8551	.7940	.7903	.8656	.9313	.9848	.7003	.8253

MODEL 987. CONFIG= 2. ALPHA= 0. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .299 MPA  
MACH NO= 3.00 REL= 6422436. Q= .0512 MPA PTS= .8135E-02 MPA RUN 35 TO= 309.5 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.05	1.8773	1.4229	1.0862	.8757	.8011	.8375	.8778	.9042	.5787	.6179
9.82	1.8784	1.4239	1.0863	.8758	.8011	.8385	.8783	.9048	.5796	.6189
19.93	1.8775	1.4235	1.0872	.8749	.8011	.8376	.8768	.9052	.5801	.6184
30.02	1.8754	1.4238	1.0868	.8746	.8009	.8369	.8793	.9062	.5799	.6169
39.86	1.8752	1.4252	1.0895	.8747	.8014	.8361	.8803	.9068	.5804	.6174
49.97	1.8737	1.4272	1.0912	.8760	.8022	.8365	.8803	.9081	.5804	.6153
59.93	1.8730	1.4279	1.0933	.8784	.8029	.8369	.8784	.9093	.5803	.6148
69.92	1.8730	1.4286	1.0935	.8819	.8048	.8375	.8751	.9100	.5809	.6145
79.91	1.8723	1.4301	1.0938	.8847	.8063	.8378	.8727	.9095	.5808	.6145
90.02	1.8712	1.4308	1.0926	.8861	.8081	.8380	.8711	.9091	.5811	.6151
100.01	1.8688	1.4312	1.0939	.8869	.8094	.8380	.8715	.9082	.5811	.6155
109.97	1.8673	1.4310	1.0944	.8861	.8098	.8396	.8737	.9082	.5813	.6167
119.96	1.8647	1.4280	1.0938	.8843	.8097	.8408	.8763	.9081	.5808	.6174
129.86	1.8619	1.4269	1.0931	.8837	.8091	.8415	.8774	.9075	.5798	.6177
139.98	1.8591	1.4257	1.0929	.8827	.8089	.8426	.8786	.9064	.5792	.6197
149.97	1.8586	1.4265	1.0936	.8808	.8091	.8445	.8810	.9061	.5789	.6207
159.99	1.8602	1.4271	1.0924	.8809	.8092	.8450	.8829	.9053	.5790	.6208
169.98	1.8598	1.4264	1.0906	.8809	.8092	.8446	.8825	.9049	.5796	.6201
179.91	1.8609	1.4276	1.0908	.8818	.8105	.8460	.8830	.9050	.5799	.6204

MODEL 987. CONFIG= 2. ALPHA= 1. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .299 MPA  
MACH NO= 3.00 REL= 6408319. Q= .0512 MPA PTS= .8126E-02 MPA RUN 36 TO= 309.9 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.08	1.9776	1.4984	1.1410	.9152	.8323	.8631	.8970	.9159	.5761	.6081
9.94	1.9738	1.4979	1.1394	.9152	.8315	.8631	.8969	.9158	.5763	.6080
19.87	1.9681	1.4947	1.1378	.9121	.8300	.8612	.8963	.9152	.5766	.6082
29.98	1.9577	1.4895	1.1349	.9085	.8278	.8580	.8947	.9145	.5761	.6068
39.83	1.9460	1.4827	1.1305	.9047	.8243	.8544	.8932	.9135	.5763	.6062
49.94	1.9323	1.4739	1.1246	.9007	.8212	.8499	.8899	.9120	.5757	.6048
59.93	1.9174	1.4637	1.1177	.8983	.8168	.8466	.8846	.9099	.5750	.6037
69.83	1.9024	1.4536	1.1098	.8949	.8133	.8430	.8777	.9084	.5748	.6043
80.00	1.8844	1.4419	1.1016	.8911	.8096	.8383	.8714	.9057	.5757	.6056
89.99	1.8652	1.4299	1.0922	.8854	.8060	.8337	.8671	.9027	.5766	.6082
99.98	1.8455	1.4173	1.0835	.8793	.8015	.8295	.8641	.9006	.5782	.6101
109.97	1.8266	1.4036	1.0748	.8718	.7965	.8265	.8627	.8993	.5791	.6127
119.99	1.8074	1.3909	1.0675	.8652	.7921	.8240	.8633	.8985	.5802	.6172
129.98	1.7936	1.3824	1.0608	.8600	.7886	.8225	.8640	.8974	.5817	.6203
139.98	1.7810	1.3728	1.0548	.8555	.7858	.8231	.8654	.8970	.5827	.6246
150.00	1.7706	1.3656	1.0489	.8511	.7827	.8229	.8665	.8964	.5830	.6283
159.96	1.7638	1.3598	1.0445	.8494	.7822	.8228	.8673	.8967	.5856	.6304
169.89	1.7595	1.3553	1.0410	.8481	.7817	.8219	.8673	.8967	.5865	.6312
180.03	1.7603	1.3560	1.0400	.8480	.7821	.8222	.8677	.8966	.5868	.6311

MODEL 987. CONFIG= 2. ALPHA= 2. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .298 MPA  
MACH NO= 3.00 REL= 6395184. Q= .0511 MPA PTS= .8120E-02 MPA RUN 37 TO= 309.8 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.08	2.0845	1.5822	1.2008	.9588	.8693	.8939	.9225	.9335	.5773	.6039
9.91	2.0809	1.5804	1.1989	.9566	.8667	.8933	.9206	.9324	.5766	.6034
19.96	2.0683	1.5729	1.1927	.9515	.8625	.8889	.9178	.9297	.5754	.6016
29.89	2.0510	1.5606	1.1843	.9447	.8566	.8824	.9123	.9256	.5740	.5985
39.89	2.0299	1.5442	1.1727	.9356	.8492	.8743	.9061	.9199	.5714	.5948
49.94	2.0031	1.5249	1.1589	.9253	.8402	.8649	.8972	.9133	.5679	.5910
59.93	1.9716	1.5029	1.1418	.9152	.8293	.8558	.8863	.9061	.5647	.5875
69.92	1.9358	1.4797	1.1241	.9037	.8190	.8451	.8734	.8982	.5618	.5860
80.00	1.8976	1.4543	1.1049	.8919	.8090	.8342	.8620	.8914	.5607	.5871
89.93	1.8602	1.4285	1.0879	.8790	.7982	.8235	.8531	.8856	.5622	.5906
99.89	1.8230	1.4015	1.0697	.8666	.7892	.8150	.8473	.8822	.5645	.5950
109.88	1.7890	1.3781	1.0540	.8536	.7803	.8101	.8445	.8816	.5683	.6024
119.87	1.7590	1.3574	1.0406	.8425	.7730	.8042	.8455	.8826	.5725	.6095
129.86	1.7321	1.3385	1.0267	.8336	.7654	.8036	.8476	.8843	.5798	.6208
140.01	1.7084	1.3231	1.0167	.8282	.7616	.8032	.8503	.8861	.5843	.6268
150.00	1.6939	1.3089	1.0079	.8235	.7590	.8039	.8547	.8895	.5898	.6334
159.90	1.6826	1.2986	1.0009	.8202	.7591	.8040	.8570	.8913	.5945	.6369
170.01	1.6727	1.2929	.9961	.8181	.7586	.8044	.8579	.8931	.5976	.6386
179.94	1.6748	1.2920	.9956	.8205	.7615	.8060	.8591	.8939	.5957	.6360

MODEL 987. CONFIG= 2. ALPHA= 4. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .298 MPA  
MACH NO= 3.00 REL= 6392189. Q= .0511 MPA PTS= .8112E-02 MPA RUN 38 TO= 309.9 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.08	2.3218	1.7623	1.3352	1.0597	.9572	.9716	.9896	.9886	.5983	.6150
9.91	2.3066	1.7570	1.3305	1.0560	.9531	.9677	.9850	.9860	.5961	.6125
19.90	2.2859	1.7402	1.3168	1.0446	.9413	.9573	.9746	.9752	.5884	.6034
29.95	2.2475	1.7115	1.2932	1.0244	.9228	.9386	.9559	.9571	.5775	.5891
39.95	2.1934	1.6762	1.2646	1.0040	.9045	.9183	.9365	.9393	.5672	.5767
49.91	2.1261	1.6298	1.2291	.9774	.8797	.8930	.9100	.9144	.5521	.5597
59.93	2.0600	1.5778	1.1879	.9466	.8501	.8645	.8793	.8858	.5345	.5406
69.80	1.9900	1.5245	1.1490	.9169	.8240	.8375	.8506	.8601	.5207	.5274
79.91	1.9150	1.4674	1.1080	.8858	.7971	.8102	.8215	.8367	.5102	.5211
89.90	1.8404	1.4090	1.0645	.8516	.7680	.7826	.7972	.8176	.5079	.5301
100.01	1.7738	1.3619	1.0331	.8290	.7505	.7670	.7859	.8117	.5119	.5411
109.94	1.7108	1.3174	1.0031	.8068	.7341	.7557	.7821	.8155	.5250	.5652
119.90	1.6572	1.2778	.9776	.7903	.7219	.7499	.7873	.8269	.5427	.5903
129.86	1.6133	1.2444	.9571	.7790	.7160	.7524	.7989	.8424	.5631	.6120
139.95	1.5777	1.2197	.9419	.7731	.7139	.7588	.8138	.8580	.5827	.6295
150.03	1.5443	1.1997	.9305	.7701	.7175	.7682	.8299	.8748	.6017	.6447
159.90	1.5206	1.1880	.9235	.7693	.7204	.7734	.8389	.8842	.6120	.6507
169.95	1.5139	1.1803	.9183	.7697	.7234	.7790	.8470	.8913	.6200	.6563
179.94	1.5226	1.1784	.9172	.7708	.7248	.7818	.8491	.8942	.6203	.6553

MODEL 987. CONFIG= 2. ALPHA= 6. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .298 MPA  
MACH NO= 3.00 REL= 6390890.0= .0511 MPA PTS= .8108E-C2 MPA RUN 39 TO= 309.6 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.08	2.5740	1.9703	1.4897	1.1818	1.0623	1.0696	1.0791	1.0691	.6401	.6495
9.91	2.5564	1.9593	1.4816	1.1751	1.0556	1.0627	1.0709	1.0624	.6341	.6421
19.90	2.5189	1.9297	1.4572	1.1534	1.0356	1.0420	1.0488	1.0419	.6203	.6246
29.89	2.4441	1.8833	1.4180	1.1228	1.0052	1.0113	1.0171	1.0084	.5988	.5989
39.95	2.3617	1.8186	1.3668	1.0829	.9678	.9731	.9767	.9693	.5740	.5712
49.94	2.2653	1.7388	1.3035	1.0305	.9169	.9212	.9211	.9138	.5333	.5233
59.90	2.1573	1.6483	1.2341	.9718	.8633	.8667	.8622	.8546	.4951	.4811
69.92	2.0464	1.5594	1.1677	.9202	.8186	.8181	.8110	.8040	.4660	.4506
80.00	1.9273	1.4694	1.0984	.8658	.7689	.7684	.7585	.7525	.4372	.4251
89.99	1.8115	1.3840	1.0352	.8147	.7246	.7252	.7155	.7113	.4219	.4254
100.01	1.7102	1.3060	.9788	.7698	.6877	.6913	.6872	.6923	.4304	.4677
109.94	1.6185	1.2351	.9310	.7368	.6636	.6723	.6818	.7079	.4638	.5270
119.96	1.5478	1.1836	.9006	.7202	.6528	.6702	.6963	.7395	.4976	.5573
129.86	1.4899	1.1411	.8763	.7114	.6528	.6857	.7332	.7872	.5444	.5915
139.98	1.4442	1.1122	.8622	.7124	.6646	.7104	.7721	.8234	.5761	.6138
150.00	1.4132	1.0947	.8568	.7186	.6782	.7305	.8004	.8470	.5948	.6261
159.99	1.3885	1.0833	.8555	.7269	.6898	.7503	.8224	.8666	.6121	.6385
169.86	1.3703	1.0787	.8553	.7329	.6979	.7630	.8371	.8833	.6265	.6493
179.97	1.3635	1.0766	.8552	.7337	.6999	.7655	.8419	.8894	.6304	.6531

MODEL 987. CONFIG= 2. ALPHA= 10. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .299 MPA  
MACH NO= 3.00 REL= 6403135.0= .0512 MPA PTS= .8130E-02 MPA RUN 42 TO= 309.7 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.05	3.1165	2.4542	1.8598	1.4827	1.3317	1.3254	1.3225	1.2992	.7832	.7810
9.85	3.0861	2.4348	1.8446	1.4693	1.3201	1.3107	1.3063	1.2863	.7757	.7721
19.90	3.0022	2.3701	1.7559	1.4273	1.2803	1.2698	1.2618	1.2432	.7477	.7410
29.98	2.8884	2.2691	1.7160	1.3584	1.2145	1.2034	1.1924	1.1741	.7024	.6916
39.86	2.7381	2.1345	1.6128	1.2722	1.1336	1.1199	1.1042	1.0861	.6462	.6301
49.94	2.5448	1.9777	1.4880	1.1689	1.0384	1.0208	.9994	.9828	.5776	.5581
59.96	2.3383	1.8045	1.3527	1.0563	.9354	.9135	.8864	.8688	.5042	.4788
69.89	2.1268	1.6314	1.2175	.9429	.8310	.8061	.7747	.7538	.4314	.4039
80.00	1.9230	1.4561	1.0821	.8300	.7263	.7006	.6632	.6386	.3582	.3363
89.93	1.7373	1.3017	.9628	.7301	.6334	.6056	.5625	.5324	.3040	.3887
100.01	1.5685	1.1601	.8491	.6344	.5420	.5113	.4648	.4451	.3397	.4315
109.97	1.4144	1.0506	.7656	.5720	.4877	.4567	.4164	.4533	.3568	.4202
119.87	1.3068	.9722	.7122	.5370	.4628	.4352	.4416	.5648	.3884	.3916
129.86	1.2259	.9246	.6897	.5358	.4803	.4894	.5688	.6142	.4360	.4040
139.95	1.1807	.9046	.6977	.5742	.5389	.5842	.6413	.6335	.4378	.4071
150.00	1.1563	.9049	.7226	.6214	.5938	.6394	.6765	.6563	.4477	.3940
159.90	1.1497	.9146	.7487	.6568	.6337	.6807	.7134	.6932	.4837	.4660
169.89	1.1477	.9214	.7613	.6727	.6529	.7101	.7647	.7871	.5297	.5577
179.97	1.1492	.9267	.7683	.6623	.6649	.7294	.8132	.8777	.5737	.6297



MODEL 987. CONFIG= 2. ALPHA= 0. REF A=0.0C2027 M\*\*2REF L= 0.3C84 M PD= .498 MPA  
MACH NO= 4.00 REL= 6285128. Q= .0367 MPA PTS= .3272E-02 MPA RUN 43 TO= 309.9 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.11	2.4464	1.7250	1.2162	.9153	.8008	.8260	.8635	.8673	.5392	.5252
9.97	2.4541	1.7278	1.2168	.9173	.8035	.8267	.8654	.8892	.5393	.5285
19.87	2.4574	1.7303	1.2196	.9185	.8040	.8250	.8625	.8874	.5382	.5263
29.98	2.4569	1.7303	1.2214	.9216	.8061	.8219	.8571	.8853	.5354	.5247
39.98	2.4679	1.7393	1.2296	.9284	.8114	.8263	.8560	.8888	.5364	.5257
49.97	2.4632	1.7375	1.2287	.9294	.8097	.8225	.8510	.8837	.5335	.5250
59.96	2.4755	1.7505	1.2369	.9342	.8151	.8290	.8510	.8850	.5346	.5282
69.89	2.4707	1.7518	1.2343	.9306	.8119	.8280	.8466	.8783	.5314	.5263
79.85	2.4682	1.7561	1.2341	.9276	.8122	.8282	.8469	.8763	.5298	.5277
89.96	2.4759	1.7640	1.2408	.9297	.8127	.8298	.8519	.8803	.5322	.5323
100.04	2.4655	1.7576	1.2345	.9236	.8073	.8253	.8494	.8788	.5321	.5311
110.00	2.4720	1.7626	1.2369	.9280	.8089	.8269	.8533	.8872	.5368	.5346
119.99	2.4665	1.7568	1.2306	.9271	.8090	.8249	.8556	.8940	.5424	.5368
129.89	2.4605	1.7479	1.2246	.9266	.8076	.8234	.8586	.8969	.5443	.5376
140.01	2.4539	1.7372	1.2148	.9221	.8044	.8222	.8596	.8956	.5440	.5361
149.91	2.4486	1.7311	1.2093	.9174	.8037	.8268	.8655	.8971	.5449	.5402
159.93	2.4478	1.7253	1.2084	.9145	.8038	.8291	.8690	.8961	.5461	.5414
169.98	2.4480	1.7221	1.2041	.9128	.8044	.8308	.8697	.8956	.5462	.5435
180.09	2.4419	1.7180	1.2004	.9111	.8030	.8315	.8682	.8940	.5457	.5440

MODEL 987. CONFIG= 2. ALPHA= 1. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .498 MPA  
MACH NO= 4.00 REL= 6351072. Q= .0367 MPA PTS= .3278E-02 MPA RUN 44 TO= 310.0 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.08	2.6249	1.8513	1.3060	.9800	.8506	.8708	.9004	.9156	.5375	.5203
9.91	2.6358	1.8541	1.3062	.9799	.8515	.8717	.9013	.9166	.5380	.5209
19.96	2.6284	1.8463	1.3028	.9779	.8506	.8687	.8982	.9134	.5364	.5214
29.74	2.6252	1.8411	1.2998	.9789	.8504	.8653	.8913	.9110	.5356	.5187
39.95	2.6111	1.8331	1.2933	.9756	.8463	.8589	.8823	.9055	.5336	.5177
49.94	2.5903	1.8233	1.2871	.9718	.8413	.8558	.8747	.9001	.5315	.5178
59.90	2.5570	1.8077	1.2727	.9606	.8335	.8467	.8640	.8895	.5271	.5136
69.92	2.5339	1.7983	1.2644	.9532	.8280	.8430	.8579	.8836	.5271	.5146
79.82	2.5022	1.7782	1.2494	.9377	.8166	.8334	.8490	.8747	.5238	.5178
89.90	2.4651	1.7562	1.2333	.9227	.8030	.8224	.8420	.8678	.5240	.5190
99.83	2.4259	1.7311	1.2147	.9093	.7918	.8098	.8355	.8635	.5256	.5216
109.97	2.3951	1.7105	1.1974	.9018	.7852	.8041	.8317	.8653	.5304	.5241
119.84	2.3579	1.6831	1.1803	.8928	.7774	.7949	.8286	.8679	.5333	.5296
129.83	2.3371	1.6625	1.1662	.8848	.7713	.7927	.8310	.8724	.5380	.5304
139.95	2.3113	1.6386	1.1484	.8740	.7647	.7881	.8317	.8719	.5366	.5301
149.94	2.2953	1.6190	1.1351	.8614	.7552	.7889	.8337	.8695	.5343	.5236
159.96	2.2785	1.6051	1.1252	.8511	.7451	.7826	.8305	.8640	.5204	.5103
169.89	2.2667	1.5957	1.1081	.8271	.7088	.7600	.8046	.8351	.4747	.4675
179.91	2.2511	1.5736	1.0654	.7698	.6375	.6988	.7428	.7662	.4039	.4048

MODEL 987. CONFIG= 2. ALPHA= 2. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .497 MPA  
MACH NO= 4.00 REL= 6314092. Q= .0367 MPA PTS= .3270E-02 MPA RUN 45 TD= 309.5 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.05	2.8206	1.9839	1.4044	1.0491	.9074	.9235	.9435	.9535	.5443	.5244
9.94	2.8204	1.9759	1.3983	1.0455	.9059	.9209	.9408	.9508	.5418	.5241
19.90	2.8149	1.9668	1.3943	1.0414	.9017	.9143	.9328	.9440	.5360	.5204
29.89	2.7825	1.9432	1.3749	1.0297	.8903	.9004	.9161	.9297	.5312	.5128
39.95	2.7510	1.9251	1.3606	1.0209	.8825	.8913	.9021	.9202	.5271	.5089
49.97	2.7086	1.9037	1.3423	1.0093	.8719	.8803	.8906	.9089	.5231	.5040
59.96	2.6526	1.8749	1.3188	.9919	.8587	.8676	.8762	.8947	.5177	.5020
69.95	2.5910	1.8335	1.2863	.9628	.8339	.8461	.8537	.8725	.5086	.4977
79.79	2.5279	1.7977	1.2628	.9443	.8196	.8323	.8405	.8605	.5067	.4978
89.93	2.4589	1.7558	1.2328	.9207	.7991	.8143	.8272	.8463	.5035	.4978
99.95	2.3978	1.7125	1.2011	.8994	.7799	.7955	.8131	.8368	.5070	.5076
109.97	2.3334	1.6640	1.1689	.8790	.7639	.7799	.8035	.8339	.5132	.5167
119.78	2.2762	1.6213	1.1416	.8622	.7492	.7668	.7966	.8380	.5207	.5250
129.86	2.2178	1.5814	1.1148	.8437	.7370	.7594	.7978	.8426	.5329	.5346
139.98	2.1653	1.5478	1.0916	.8321	.7295	.7549	.8020	.8489	.5405	.5428
149.91	2.1295	1.5210	1.0766	.8214	.7260	.7555	.8071	.8529	.5475	.5496
159.87	2.1006	1.5015	1.0611	.8128	.7227	.7585	.8102	.8537	.5540	.5558
169.95	2.0864	1.4909	1.0510	.8060	.7187	.7598	.8136	.8563	.5593	.5610
180.00	2.0544	1.4889	1.0482	.8064	.7162	.7593	.8110	.8546	.5578	.5595

MODEL 987. CONFIG= 2. ALPHA= 4. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .498 MPA  
MACH NO= 4.00 REL= 6360702. Q= .0367 MPA PTS= .3279E-02 MPA RUN 46 TD= 309.2 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.02	3.2214	2.2848	1.6126	1.2090	1.0449	1.0504	1.0551	1.0542	.5786	.5537
10.00	3.2291	2.2804	1.6080	1.2026	1.0396	1.0459	1.0505	1.0497	.5730	.5472
19.84	3.1748	2.2518	1.5897	1.1889	1.0259	1.0295	1.0345	1.0338	.5635	.5381
29.89	3.1067	2.2026	1.5502	1.1589	.9983	.9999	.9992	1.0010	.5459	.5160
39.98	3.0226	2.1509	1.5150	1.1343	.9789	.9798	.9738	.9802	.5383	.5077
50.00	2.9156	2.0834	1.4627	1.0903	.9356	.9380	.9277	.9325	.5091	.4764
59.96	2.8112	2.0016	1.4076	1.0482	.9020	.9043	.8925	.8965	.4933	.4603
69.98	2.6815	1.9133	1.3435	.9959	.8572	.8600	.8497	.8507	.4710	.4389
79.97	2.5482	1.8295	1.2799	.9440	.8105	.8169	.8080	.8061	.4515	.4255
90.08	2.4218	1.7368	1.2140	.8962	.7691	.7772	.7711	.7695	.4393	.4233
99.98	2.3040	1.6487	1.1546	.8571	.7375	.7454	.7446	.7477	.4367	.4334
110.00	2.1926	1.5557	1.0880	.8096	.6974	.7061	.7225	.7412	.4632	.4716
119.99	2.1002	1.4857	1.0458	.7834	.6794	.6938	.7208	.7551	.4846	.4921
130.11	2.0189	1.4254	1.0091	.7637	.6691	.6874	.7309	.7750	.5077	.5122
140.01	1.9424	1.3705	.9767	.7473	.6632	.6909	.7490	.7995	.5358	.5336
149.91	1.8875	1.3365	.9549	.7397	.6627	.7021	.7663	.8190	.5550	.5480
159.99	1.8460	1.3192	.9429	.7365	.6647	.7095	.7763	.8310	.5671	.5553
169.98	1.8168	1.3028	.9336	.7320	.6645	.7146	.7837	.8383	.5726	.5585
180.00	1.7824	1.2946	.9141	.6968	.6068	.6718	.7435	.7929	.4723	.4592

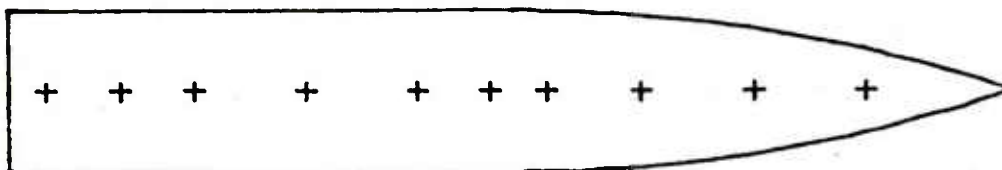
MODEL 987. CONFIG= 2. ALPHA= 6. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .498 MPA  
MACH NO= 4.00 REL= 6335111. Q= .0367 MPA PTS= .3274E-02 MPA RUN 47 TO= 309.9 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.02	3.6285	2.6415	1.8659	1.4016	1.2098	1.2073	1.2010	1.1901	.6366	.6098
9.94	3.6061	2.6246	1.8512	1.3866	1.1981	1.1930	1.1850	1.1754	.6231	.5959
19.90	3.5437	2.5778	1.8149	1.3573	1.1711	1.1673	1.1526	1.1444	.6060	.5742
29.86	3.4396	2.5019	1.7608	1.3156	1.1326	1.1262	1.1086	1.1019	.5809	.5470
39.98	3.3077	2.3981	1.6875	1.2586	1.0816	1.0745	1.0502	1.0452	.5493	.5104
49.97	3.1536	2.2749	1.5931	1.1786	1.0073	1.0004	.9728	.9664	.5039	.4616
59.96	2.9502	2.1417	1.5010	1.1048	.9462	.9413	.9090	.8987	.4707	.4287
69.98	2.7646	1.9866	1.3851	1.0084	.8553	.8502	.8183	.8024	.4187	.3621
79.88	2.5924	1.8453	1.2885	.9330	.7914	.7849	.7557	.7359	.3905	.3636
89.93	2.4036	1.6926	1.1755	.8466	.7126	.7053	.6782	.6571	.3649	.3675
100.04	2.2166	1.5491	1.0698	.7721	.6508	.6433	.6235	.6085	.3660	.3887
109.91	2.0485	1.4280	.9906	.7232	.6135	.6078	.5965	.5971	.3824	.3980
119.99	1.9312	1.3550	.9509	.7006	.6002	.5950	.5932	.6072	.3968	.4044
129.89	1.8201	1.2792	.9027	.6760	.5870	.5942	.6213	.6692	.4465	.4320
140.01	1.7336	1.2186	.8689	.6644	.5899	.6111	.6657	.7242	.4904	.4846
149.91	1.6671	1.1777	.8471	.6641	.6016	.6416	.7144	.7702	.5318	.5158
160.02	1.6065	1.1532	.8339	.6576	.5954	.6532	.7320	.7854	.5426	.5240
169.98	1.5697	1.1279	.8014	.6234	.5531	.6274	.7129	.7687	.5337	.5155
179.97	1.4873	1.0207	.6865	.5144	.4384	.5169	.6006	.6489	.4771	.4655

MODEL 987. CONFIG= 2. ALPHA= 10. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .497 MPA  
MACH NO= 4.00 REL= 6325485. Q= .0367 MPA PTS= .3278E-02 MPA RUN 48 TO= 309.0 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.05	4.6097	3.4744	2.4872	1.8841	1.6500	1.6255	1.5956	1.5752	.8485	.8251
9.76	4.5882	3.4550	2.4726	1.8710	1.6328	1.6129	1.5791	1.5611	.8344	.8062
19.90	4.4715	3.3403	2.3890	1.7980	1.5611	1.5418	1.5014	1.4809	.7784	.7388
29.98	4.2496	3.1734	2.2717	1.7063	1.4791	1.4568	1.4105	1.3930	.7241	.6815
39.98	3.9975	2.9681	2.1053	1.5630	1.3371	1.3192	1.2644	1.2451	.6232	.5722
49.94	3.6973	2.7080	1.9154	1.4063	1.1923	1.1765	1.1153	1.0920	.5341	.4867
59.96	3.3435	2.4134	1.7020	1.2266	1.0236	1.0079	.9437	.9111	.4449	.4075
69.98	2.9792	2.1097	1.4791	1.0459	.8590	.8426	.7786	.7423	.3733	.3558
80.06	2.6289	1.8422	1.2847	.9009	.7290	.7079	.6515	.6141	.3346	.3387
89.93	2.2678	1.5442	1.0408	.7071	.5657	.5396	.4991	.4786	.3149	.3505
100.01	1.9979	1.3540	.9086	.6195	.4989	.4757	.4457	.4412	.3216	.3516
110.00	1.7344	1.1714	.7803	.5358	.4464	.4244	.4211	.4444	.3336	.3431
119.99	1.5325	1.0433	.6987	.4956	.4280	.4213	.4434	.4765	.3414	.3336
130.02	1.4070	.9641	.6627	.4920	.4438	.4527	.4740	.4924	.3550	.3319
139.89	1.3094	.9202	.6589	.5215	.4815	.4864	.5026	.5053	.3624	.3411
149.88	1.2702	.9095	.6815	.5616	.5235	.5299	.5435	.5348	.3773	.3691
160.02	1.2434	.9110	.7019	.5906	.5555	.5834	.6106	.6011	.4064	.4065
169.77	1.2297	.9134	.7143	.6067	.5757	.6235	.6992	.7507	.4699	.4727
179.94	1.2281	.9120	.7148	.6102	.5802	.6304	.7209	.7975	.4890	.4876





Configuration 3

MODEL 987. CONFIG= 3. ALPHA= 0. REF A=0.002027 M**2REF L= 0.3084 M PO= .183 MPA MACH NO= 2.00 REL= 6544376. Q= .0655 MPA PTS= .2339E-01 MPA RUN 51 TO= 308.7 K										
PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.05	1.4534	1.2156	1.0246	.8975	.8631	.8924	.9277	.9538	.9620	.9742
9.94	1.4530	1.2165	1.0249	.8982	.8635	.8927	.9302	.9609	.9619	.9740
20.02	1.4530	1.2153	1.0250	.8981	.8649	.8915	.9294	.9585	.9579	.9734
29.98	1.4518	1.2151	1.0242	.8977	.8646	.8888	.9271	.9548	.9573	.9715
39.98	1.4534	1.2162	1.0253	.8977	.8657	.8880	.9275	.9554	.9590	.9707
49.97	1.4529	1.2162	1.0247	.8975	.8636	.8969	.9296	.9558	.9557	.9681
59.96	1.4524	1.2141	1.0227	.8967	.8597	.9108	.9325	.9555	.9526	.9682
70.07	1.4525	1.2132	1.0220	.8963	.8572	.9083	.9330	.9543	.9501	.9681
80.03	1.4520	1.2119	1.0206	.8958	.8557	.9064	.9349	.9527	.9485	.9677
89.93	1.4520	1.2109	1.0188	.8960	.8555	.9078	.9353	.9522	.9484	.9679
100.01	1.4512	1.2105	1.0172	.8963	.8558	.9066	.9341	.9518	.9491	.9690
109.97	1.4508	1.2105	1.0156	.8950	.8577	.9070	.9328	.9516	.9513	.9714
119.99	1.4502	1.2099	1.0154	.8936	.8595	.9093	.9308	.9517	.9539	.9724
129.92	1.4508	1.2110	1.0167	.8936	.8612	.8960	.9276	.9521	.9570	.9731
140.01	1.4510	1.2104	1.0174	.8929	.8604	.8876	.9249	.9524	.9592	.9738
150.00	1.4510	1.2094	1.0174	.8922	.8591	.8882	.9233	.9525	.9616	.9742
160.11	1.4505	1.2083	1.0177	.8913	.8585	.8889	.9247	.9537	.9622	.9749
169.98	1.4508	1.2081	1.0180	.8921	.8578	.8890	.9252	.9533	.9624	.9753
180.12	1.4510	1.2089	1.0164	.8932	.8565	.8885	.9210	.9531	.9622	.9752

MODEL 987. CONFIG= 3. ALPHA= 1. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .183 MPA  
MACH NO= 2.00 REL= 6532294. Q= .0654 MPA PTS= .2335E-01 MPA RUN 52 TD= 308.6 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-.08	1.4992	1.2497	1.0487	.9166	.8779	.9046	.9319	.9596	.9619	.9742
9.88	1.4977	1.2509	1.0493	.9172	.8789	.9046	.9377	.9655	.9624	.9744
19.93	1.4952	1.2482	1.0491	.9169	.8795	.9033	.9351	.9613	.9571	.9731
29.92	1.4912	1.2460	1.0469	.9147	.8782	.9000	.9325	.9582	.9581	.9712
39.95	1.4858	1.2429	1.0434	.9117	.8759	.8967	.9311	.9577	.9593	.9690
49.91	1.4799	1.2385	1.0399	.9093	.8722	.9011	.9322	.9581	.9559	.9658
59.99	1.4724	1.2321	1.0346	.9061	.8667	.9138	.9343	.9572	.9524	.9653
69.98	1.4647	1.2250	1.0293	.9024	.8608	.9129	.9343	.9554	.9489	.9643
79.91	1.4566	1.2174	1.0235	.8986	.8570	.9072	.9343	.9531	.9466	.9637
89.96	1.4495	1.2107	1.0176	.8956	.8544	.9067	.9341	.9515	.9461	.9640
99.95	1.4427	1.2051	1.0119	.8929	.8525	.9048	.9321	.9509	.9469	.9651
109.91	1.4347	1.1983	1.0063	.8888	.8524	.9031	.9303	.9508	.9492	.9677
119.90	1.4283	1.1938	1.0033	.8855	.8531	.9051	.9287	.9516	.9527	.9700
129.98	1.4227	1.1907	1.0020	.8838	.8527	.8940	.9260	.9528	.9567	.9710
139.89	1.4180	1.1854	1.0002	.8811	.8511	.8838	.9239	.9540	.9599	.9721
149.94	1.4144	1.1823	.9983	.8788	.8492	.8822	.9230	.9554	.9633	.9732
159.93	1.4115	1.1790	.9970	.8772	.8476	.8828	.9250	.9570	.9652	.9744
169.92	1.4102	1.1774	.9966	.8773	.8459	.8827	.9236	.9574	.9656	.9743
179.91	1.4115	1.1781	.9969	.8782	.8450	.8824	.9211	.9580	.9659	.9755

MODEL 987. CONFIG= 3. ALPHA= 2. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .183 MPA  
MACH NO= 2.00 REL= 6527769. Q= .0654 MPA PTS= .2335E-01 MPA RUN 53 TD= 308.9 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
.07	1.5478	1.2864	1.0782	.9363	.8960	.9170	.9366	.9656	.9645	.9766
10.03	1.5445	1.2861	1.0781	.9383	.8963	.9167	.9459	.9670	.9641	.9760
20.17	1.5388	1.2821	1.0754	.9362	.8951	.9141	.9406	.9611	.9571	.9738
30.17	1.5299	1.2761	1.0705	.9317	.8916	.9093	.9358	.9576	.9583	.9705
40.04	1.5193	1.2687	1.0640	.9258	.8859	.9027	.9322	.9554	.9580	.9669
50.15	1.5058	1.2588	1.0548	.9198	.8791	.9005	.9302	.9537	.9529	.9611
60.14	1.4905	1.2463	1.0451	.9123	.8700	.9096	.9291	.9503	.9463	.9576
70.13	1.4763	1.2325	1.0345	.9050	.8610	.9111	.9282	.9472	.9416	.9557
80.12	1.4619	1.2194	1.0240	.8975	.8543	.9005	.9254	.9440	.9384	.9542
90.02	1.4472	1.2073	1.0139	.8910	.8491	.8975	.9243	.9413	.9372	.9545
100.01	1.4337	1.1940	1.0036	.8849	.8452	.8947	.9221	.9405	.9378	.9561
110.09	1.4169	1.1822	.9951	.8785	.8434	.8923	.9202	.9408	.9413	.9597
120.05	1.4024	1.1734	.9893	.8735	.8428	.8931	.9196	.9428	.9461	.9638
130.14	1.3901	1.1662	.9859	.8707	.8417	.8860	.9188	.9463	.9523	.9669
140.19	1.3791	1.1592	.9828	.8676	.8404	.8756	.9191	.9503	.9580	.9700
150.09	1.3723	1.1552	.9803	.8650	.8388	.8733	.9202	.9538	.9636	.9726
160.11	1.3680	1.1502	.9782	.8642	.8371	.8745	.9226	.9567	.9672	.9748
170.10	1.3654	1.1469	.9759	.8640	.8361	.8751	.9216	.9585	.9687	.9760
180.12	1.3654	1.1483	.9753	.8640	.8352	.8754	.9202	.9597	.9693	.9772

MODEL 987. CONFIG= 3. ALPHA= 4. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .183 MPA  
MACH NO= 2.00 REL= 6513098. Q= .0654 MPA PTS= .2335E-01 MPA RUN 54 TO= 309.2 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.05	1.6490	1.3676	1.1417	.9849	.9369	.9513	.9545	.9873	.9763	.9877
9.94	1.6425	1.3648	1.1410	.9834	.9360	.9504	.9681	.9782	.9731	.9864
20.11	1.6305	1.3551	1.1330	.9770	.9301	.9444	.9583	.9691	.9615	.9806
30.11	1.6138	1.3409	1.1208	.9669	.9203	.9329	.9455	.9608	.9597	.9704
40.10	1.5912	1.3233	1.1039	.9531	.9051	.9169	.9348	.9494	.9502	.9595
49.97	1.5634	1.2999	1.0846	.9376	.8899	.8999	.9210	.9390	.9373	.9453
60.17	1.5306	1.2719	1.0619	.9195	.8711	.8966	.9102	.9271	.9229	.9329
70.07	1.4982	1.2448	1.0394	.9020	.8531	.8966	.9017	.9164	.9113	.9240
80.03	1.4662	1.2169	1.0173	.8848	.8374	.8773	.8918	.9090	.9031	.9185
89.99	1.4357	1.1895	.9963	.8670	.8251	.8662	.8870	.9037	.8999	.9179
100.07	1.4052	1.1658	.9780	.8575	.8169	.8613	.8845	.9037	.9027	.9237
110.00	1.3774	1.1463	.9650	.8474	.8131	.8591	.8854	.9064	.9115	.9333
120.05	1.3506	1.1300	.9554	.8415	.8133	.8610	.8901	.9177	.9243	.9448
129.98	1.3309	1.1178	.9488	.8383	.8144	.8637	.8968	.9291	.9378	.9545
140.04	1.3158	1.1085	.9448	.8383	.8157	.8592	.9056	.9416	.9505	.9629
150.03	1.3025	1.1016	.9414	.8386	.8177	.8588	.9137	.9514	.9611	.9695
160.08	1.2917	1.0971	.9393	.8393	.8183	.8628	.9195	.9588	.9693	.9758
170.04	1.2860	1.0957	.9384	.8399	.8189	.8667	.9221	.9642	.9738	.9802
179.88	1.2880	1.0949	.9377	.8405	.8192	.8700	.9231	.9674	.9757	.9832

MODEL 987. CONFIG= 3. ALPHA= 6. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .183 MPA  
MACH NO= 2.00 REL= 6538213. Q= .0655 MPA PTS= .2338E-01 MPA RUN 57 TO= 308.7 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.29	1.7671	1.4586	1.2089	1.0400	.9869	.9962	.9885	1.0188	.9999	1.0082
9.88	1.7561	1.4520	1.2059	1.0366	.9826	.9929	.9999	1.0035	.9914	1.0043
19.72	1.7395	1.4362	1.1925	1.0252	.9717	.9819	.9895	.9902	.9746	.9919
29.92	1.7122	1.4114	1.1713	1.0072	.9533	.9610	.9639	.9704	.9632	.9720
39.92	1.6702	1.3779	1.1422	.9812	.9284	.9334	.9394	.9463	.9377	.9464
49.88	1.6209	1.3400	1.1075	.9526	.8996	.9022	.9106	.9197	.9101	.9191
59.90	1.5674	1.2955	1.0705	.9215	.8675	.8760	.8825	.8924	.8820	.8911
69.89	1.5117	1.2486	1.0325	.8884	.8355	.8596	.8580	.8669	.8573	.8686
79.88	1.4562	1.2014	.9950	.8574	.8072	.8387	.8391	.8483	.8395	.8542
89.87	1.4048	1.1619	.9628	.8330	.7859	.8152	.8244	.8401	.8341	.8541
99.86	1.3596	1.1264	.9374	.8131	.7719	.8059	.8214	.8423	.8419	.8677
109.91	1.3194	1.0986	.9185	.8004	.7670	.8052	.8283	.8578	.8630	.8930
119.84	1.2898	1.0779	.9070	.7957	.7699	.8125	.8447	.8813	.8913	.9181
129.80	1.2652	1.0626	.9005	.7978	.7772	.8264	.8663	.9070	.9170	.9368
139.89	1.2497	1.0529	.8977	.8022	.7866	.8349	.8872	.9282	.9352	.9472
149.88	1.2379	1.0482	.8989	.8087	.7950	.8424	.9039	.9434	.9482	.9548
159.99	1.2293	1.0455	.9014	.8142	.8022	.8517	.9156	.9557	.9596	.9649
169.80	1.2225	1.0451	.9030	.8169	.8062	.8602	.9230	.9661	.9705	.9786
179.85	1.2228	1.0438	.9029	.8171	.8067	.8659	.9259	.9719	.9760	.9879

MODEL 987. CONFIG= 3. ALPHA= 10. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .183 MPA  
MACH NO= 2.00 REL= 6536444. Q= .0654 MPA PTS= .2336E-G1 MPA RUN 58 TO= 308.4 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-2.23	2.0300	1.6750	1.3834	1.1882	1.1199	1.1261	1.1030	1.1190	1.0988	1.0990
9.88	2.0109	1.6657	1.3744	1.1806	1.1130	1.1174	1.1084	1.1011	1.0815	1.0886
19.81	1.9799	1.6318	1.3450	1.1551	1.0874	1.0919	1.0861	1.0703	1.0472	1.0572
29.92	1.9127	1.5774	1.2989	1.1143	1.0455	1.0468	1.0321	1.0200	1.0060	1.0065
39.92	1.8291	1.5105	1.2404	1.0599	.9915	.9889	.9732	.9609	.9463	.9437
49.91	1.7321	1.4297	1.1697	.9968	.9269	.9202	.9056	.8881	.8690	.8662
59.78	1.6316	1.3429	1.0960	.9286	.8601	.8480	.8316	.8123	.7933	.7852
69.89	1.5296	1.2517	1.0173	.8566	.7912	.7852	.7580	.7364	.7138	.7037
79.88	1.4315	1.1665	.9431	.7910	.7270	.7313	.6915	.6664	.6411	.6300
89.84	1.3401	1.0900	.8809	.7347	.6734	.6750	.6403	.6103	.5914	.6147
99.95	1.2574	1.0243	.8299	.6922	.6369	.6389	.6099	.6211	.6810	.7574
109.91	1.1968	.9786	.7977	.6728	.6262	.6369	.6416	.7391	.7912	.8327
119.90	1.1461	.9504	.7850	.6760	.6414	.6731	.7366	.8186	.8397	.8559
129.80	1.1217	.9413	.7901	.6977	.6767	.7340	.8068	.8480	.8547	.8620
139.74	1.1066	.9440	.8065	.7262	.7190	.7858	.8394	.8580	.8554	.8534
149.79	1.1071	.9544	.8275	.7570	.7524	.8145	.8555	.8565	.8320	.8075
159.96	1.1101	.9631	.8444	.7769	.7732	.8325	.8726	.8738	.8547	.8423
169.95	1.1114	.9706	.8547	.7886	.7866	.8522	.9090	.9493	.9588	.9735
179.91	1.1109	.9737	.8575	.7927	.7923	.8683	.9352	.9939	1.0033	1.0192

MODEL 987. CONFIG= 3. ALPHA= 0. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .298 MPA  
MACH NO= 3.00 REL= 6407355. Q= .0511 MPA PTS= .8107E-02 MPA RUN 59 TD= 309.5 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.26	1.8727	1.4222	1.0842	.8735	.7997	.8386	.8799	.9085	.9142	.9295
9.94	1.8723	1.4221	1.0840	.8732	.7997	.8378	.8803	.9090	.9147	.9300
19.90	1.8718	1.4217	1.0845	.8724	.7988	.8373	.8803	.9095	.9151	.9288
29.89	1.8709	1.4226	1.0851	.8717	.7991	.8367	.8810	.9097	.9154	.9277
39.98	1.8709	1.4238	1.0873	.8726	.7987	.8354	.8815	.9106	.9167	.9264
49.97	1.8690	1.4258	1.0877	.8738	.7995	.8350	.8810	.9110	.9180	.9234
59.96	1.8690	1.4270	1.0899	.8755	.8003	.8350	.8783	.9124	.9185	.9209
69.95	1.8683	1.4281	1.0906	.8787	.8015	.8345	.8737	.9127	.9193	.9195
79.70	1.8685	1.4295	1.0909	.8820	.8035	.8352	.8718	.9122	.9200	.9206
89.96	1.8675	1.4303	1.0908	.8834	.8053	.8359	.8702	.9115	.9198	.9217
99.80	1.8654	1.4313	1.0915	.8833	.8065	.8358	.8710	.9109	.9201	.9199
110.00	1.8625	1.4304	1.0913	.8831	.8067	.8381	.8726	.9112	.9190	.9193
119.96	1.8589	1.4268	1.0902	.8810	.8059	.8378	.8749	.9099	.9173	.9192
130.02	1.8583	1.4265	1.0904	.8806	.8063	.8394	.8776	.9098	.9164	.9222
140.01	1.8558	1.4261	1.0906	.8801	.8062	.8415	.8798	.9093	.9140	.9243
149.82	1.8550	1.4270	1.0901	.8791	.8065	.8444	.8823	.9092	.9135	.9259
160.02	1.8555	1.4273	1.0895	.8794	.8075	.8451	.8843	.9089	.9137	.9257
170.01	1.8558	1.4264	1.0878	.8795	.8072	.8452	.8845	.9082	.9136	.9253
179.97	1.8572	1.4276	1.0882	.8807	.8085	.8456	.8854	.9091	.9143	.9245

MODEL 987. CONFIG= 3. ALPHA= 1. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .298 MPA  
MACH NO= 3.00 REL= 6406357. Q= .0511 MPA PTS= .8113E-02 MPA RUN 60 TD= 309.5 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.14	1.9741	1.4943	1.1368	.9122	.8302	.8619	.8980	.9190	.9207	.9358
9.82	1.9696	1.4930	1.1353	.9104	.8285	.8610	.8970	.9193	.9206	.9353
19.90	1.9641	1.4906	1.1338	.9081	.8277	.8593	.8971	.9185	.9202	.9337
30.02	1.9544	1.4852	1.1297	.9042	.8239	.8549	.8947	.9171	.9197	.9310
39.98	1.9437	1.4789	1.1261	.9012	.8217	.8527	.8928	.9161	.9187	.9283
49.97	1.9299	1.4704	1.1209	.8974	.8184	.8484	.8887	.9143	.9176	.9236
59.75	1.9154	1.4609	1.1142	.8940	.8137	.8440	.8837	.9124	.9159	.9184
69.95	1.8990	1.4502	1.1058	.8905	.8099	.8391	.8759	.9101	.9140	.9145
79.91	1.8809	1.4392	1.0970	.8866	.8064	.8346	.8694	.9067	.9129	.9134
89.84	1.8619	1.4279	1.0883	.8816	.8030	.8303	.8653	.9049	.9124	.9143
99.80	1.8432	1.4160	1.0812	.8756	.7984	.8267	.8625	.9031	.9119	.9129
109.97	1.8233	1.4007	1.0714	.8683	.7936	.8244	.8619	.9020	.9108	.9118
119.99	1.8065	1.3896	1.0645	.8621	.7898	.8222	.8636	.9015	.9099	.9131
129.86	1.7928	1.3812	1.0577	.8568	.7867	.8211	.8643	.9004	.9088	.9146
139.92	1.7805	1.3714	1.0512	.8527	.7834	.8220	.8661	.8995	.9074	.9180
149.91	1.7705	1.3646	1.0455	.8493	.7817	.8224	.8679	.8999	.9065	.9201
159.90	1.7638	1.3584	1.0410	.8474	.7811	.8226	.8690	.8993	.9072	.9212
170.01	1.7604	1.3548	1.0388	.8466	.7807	.8218	.8695	.8993	.9072	.9208
179.97	1.7603	1.3543	1.0380	.8463	.7787	.8215	.8687	.8981	.9064	.9187

MODEL 987. CONFIG= 3. ALPHA= 2. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .298 MPA  
MACH NO= 3.00 REL= 6379657. Q= .0511 MPA PTS= .8105E-02 MPA RUN 61 TO= 310.1 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
.07	2.0807	1.5760	1.1958	.9549	.8673	.6931	.9239	.9403	.9353	.9495
10.09	2.0757	1.5746	1.1931	.9532	.8651	.8917	.9211	.9385	.9343	.9485
20.11	2.0617	1.5658	1.1862	.9470	.8594	.8862	.9176	.9346	.9313	.9431
30.11	2.0436	1.5533	1.1775	.9391	.8527	.8784	.9117	.9292	.9269	.9367
40.10	2.0216	1.5381	1.1670	.9306	.8460	.8710	.9053	.9242	.9223	.9302
50.18	1.9947	1.5165	1.1529	.9213	.8367	.8618	.8962	.9165	.9155	.9211
60.17	1.9639	1.4974	1.1362	.9111	.8257	.8513	.8843	.9091	.9082	.9106
69.95	1.9299	1.4753	1.1200	.9006	.8165	.8421	.8720	.9023	.9023	.9033
80.66	1.8929	1.4498	1.1004	.8885	.8057	.8309	.8603	.8948	.8974	.8981
90.14	1.8566	1.4257	1.0841	.8765	.7966	.8220	.8523	.8900	.8953	.8974
100.19	1.8193	1.3979	1.0650	.8620	.7855	.8126	.8466	.8874	.8945	.8979
110.21	1.7866	1.3745	1.0504	.8509	.7778	.8077	.8455	.8872	.8956	.8986
120.20	1.7566	1.3537	1.0368	.8407	.7709	.8040	.8470	.8887	.8972	.9026
130.11	1.7298	1.3357	1.0245	.8327	.7650	.8022	.8492	.8895	.8986	.9081
140.13	1.7104	1.3199	1.0140	.8268	.7613	.8035	.8528	.8917	.9011	.9149
150.18	1.6974	1.3064	1.0057	.8225	.7595	.8047	.8563	.8943	.9036	.9204
160.26	1.6912	1.2947	.9974	.8196	.7595	.8047	.8590	.8961	.9063	.9238
170.19	1.6864	1.2906	.9944	.8188	.7591	.8051	.8599	.8974	.9072	.9246
180.18	1.6850	1.2890	.9926	.8192	.7591	.8060	.8599	.8974	.9072	.9242

MODEL 987. CONFIG= 3. ALPHA= 4. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .298 MPA  
MACH NO= 3.00 REL= 6387017. Q= .0512 MPA PTS= .8116E-02 MPA RUN 62 TO= 310.1 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-.05	2.3128	1.7579	1.3306	1.0550	.9530	.9701	.9892	.9940	.9829	.9939
9.85	2.3052	1.7530	1.3254	1.0500	.9480	.9658	.9843	.9895	.9785	.9888
19.93	2.2814	1.7344	1.3112	1.0381	.9370	.9539	.9732	.9786	.9676	.9766
29.86	2.2400	1.7063	1.2895	1.0201	.9216	.9383	.9574	.9620	.9519	.9582
39.86	2.1852	1.6693	1.2589	.9971	.8982	.9141	.9335	.9383	.9287	.9320
49.97	2.1197	1.6232	1.2228	.9696	.8729	.8879	.9056	.9117	.9029	.9039
59.96	2.0516	1.5720	1.1831	.9416	.8458	.8619	.8767	.8857	.8775	.8743
69.95	1.9802	1.5158	1.1400	.9071	.8147	.8301	.8426	.8551	.8486	.8424
79.73	1.9083	1.4617	1.1016	.8791	.7913	.8050	.8173	.8345	.8289	.8252
89.96	1.8371	1.4063	1.0635	.8505	.7678	.7828	.7969	.8191	.8185	.8173
99.98	1.7682	1.3556	1.0268	.8224	.7448	.7636	.7836	.8140	.8196	.8235
109.97	1.6994	1.3112	.9975	.8005	.7284	.7531	.7807	.8196	.8301	.8357
119.87	1.6368	1.2731	.9731	.7860	.7184	.7488	.7879	.8325	.8447	.8532
129.86	1.5877	1.2405	.9531	.7755	.7133	.7526	.8004	.8476	.8625	.8724
139.89	1.5501	1.2158	.9376	.7698	.7131	.7601	.8158	.8629	.8791	.8909
149.91	1.5244	1.1976	.9280	.7677	.7156	.7670	.8289	.8758	.8907	.9045
159.99	1.5032	1.1860	.9211	.7674	.7194	.7735	.8393	.8857	.9001	.9149
170.04	1.4967	1.1780	.9161	.7680	.7213	.7785	.8454	.8917	.9066	.9215
179.97	1.5078	1.1749	.9154	.7690	.7201	.7803	.8469	.8923	.9058	.9190



MODEL 987. CONFIG= 3. ALPHA= 6. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .298 MPA  
MACH NO= 3.00 REL= 6383528. Q= .0511 MPA PTS= .8101E-02 MPA RUN 63 TO= 309.8 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-29	2.5614	1.9654	1.4836	1.1752	1.0575	1.0680	1.0770	1.0747	1.0575	1.0670
9.70	2.5463	1.9538	1.4744	1.1673	1.0513	1.0603	1.0695	1.0676	1.0500	1.0581
19.78	2.5087	1.9228	1.4498	1.1466	1.0320	1.0406	1.0489	1.0464	1.0288	1.0356
29.71	2.4323	1.8755	1.4112	1.1162	1.0008	1.0096	1.0166	1.0108	.9941	.9981
39.71	2.3515	1.8113	1.3592	1.0738	.9611	.9683	.9727	.9668	.9498	.9495
49.82	2.2552	1.7312	1.2963	1.0230	.9117	.9179	.9183	.9116	.8947	.8889
59.78	2.1488	1.6464	1.2326	.9722	.8674	.8710	.8668	.8610	.8437	.8344
69.71	2.0420	1.5550	1.1639	.9176	.8184	.8197	.8125	.8054	.7877	.7743
79.76	1.9216	1.4631	1.0930	.8599	.7650	.7652	.7556	.7491	.7315	.7139
89.84	1.8051	1.3786	1.0302	.8113	.7232	.7239	.7148	.7109	.6956	.6849
99.83	1.7029	1.3016	.9762	.7687	.6870	.6906	.6864	.6934	.6910	.6955
109.82	1.6157	1.2328	.9302	.7362	.6625	.6733	.6815	.7108	.7248	.7429
119.75	1.5435	1.1788	.8974	.7180	.6515	.6716	.7010	.7506	.7730	.7922
129.71	1.4783	1.1362	.8726	.7100	.6543	.6907	.7409	.7986	.8196	.8335
139.83	1.4287	1.1100	.8602	.7111	.6637	.7116	.7735	.8273	.8456	.8550
149.85	1.3905	1.0925	.8547	.7172	.6776	.7326	.8007	.8493	.8635	.8705
159.75	1.3686	1.0816	.8537	.7262	.6899	.7522	.8225	.8687	.8803	.8879
169.83	1.3673	1.0772	.8552	.7327	.6980	.7651	.8373	.8854	.8983	.9108
179.85	1.3713	1.0752	.8547	.7337	.6986	.7669	.8414	.8898	.9040	.9188

MODEL 987. CONFIG= 3. ALPHA= 10. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .298 MPA  
MACH NO= 3.00 REL= 6386264. Q= .0511 MPA PTS= .8115E-02 MPA RUN 64 TO= 310.2 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-08	3.1104	2.4553	1.8564	1.4766	1.3279	1.3216	1.3208	1.3091	1.2815	1.2897
9.82	3.0857	2.4346	1.8408	1.4624	1.3142	1.3066	1.3050	1.2935	1.2650	1.2726
19.93	2.9958	2.3648	1.7866	1.4142	1.2657	1.2581	1.2530	1.2368	1.2109	1.2152
30.02	2.8616	2.2635	1.7079	1.3480	1.2060	1.1970	1.1879	1.1716	1.1449	1.1475
39.95	2.7294	2.1280	1.6042	1.2616	1.1253	1.1129	1.0996	1.0815	1.0545	1.0539
49.94	2.5461	1.9713	1.4785	1.1566	1.0269	1.0105	.9890	.9687	.9411	.9349
59.93	2.3429	1.7992	1.3455	1.0453	.9244	.9050	.8761	.8533	.8255	.8125
69.95	2.1281	1.6233	1.2075	.9316	.8196	.7973	.7636	.7347	.7081	.6896
79.91	1.9254	1.4501	1.0744	.8176	.7117	.6884	.6476	.6122	.5854	.5629
90.02	1.7366	1.2911	.9497	.7139	.6150	.5903	.5428	.5058	.4823	.4726
99.98	1.5669	1.1548	.8446	.6302	.5391	.5124	.4651	.4443	.4384	.4807
109.79	1.4149	1.0431	.7576	.5640	.4834	.4577	.4278	.4858	.5564	.6002
119.96	1.3030	.9675	.7070	.5351	.4684	.4512	.4722	.5841	.6134	.6278
129.86	1.2275	.9221	.6903	.5440	.4968	.5163	.5875	.6213	.6212	.6173
140.01	1.1805	.9047	.7046	.5895	.5611	.6063	.6541	.6454	.6163	.5858
149.88	1.1570	.9081	.7336	.6377	.6146	.6617	.6917	.6769	.6375	.6022
160.02	1.1509	.9151	.7502	.6582	.6362	.6877	.7170	.7059	.6780	.6595
169.89	1.1480	.9239	.7645	.6760	.6573	.7199	.7772	.8190	.8273	.8496
179.85	1.1597	.9363	.7761	.6872	.6681	.7366	.8158	.8804	.9028	.9269

MODEL 987. CONFIG= 3. ALPHA= -0. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .496 MPA  
MACH NO= 4.00 REL= 6330136. Q= .0367 MPA PTS= .3261E-02 MPA RUN 67 TD= 309.2 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.02	2.4373	1.7209	1.2119	.9118	.7975	.8243	.8609	.8850	.8963	.9063
9.94	2.4404	1.7216	1.2117	.9117	.7984	.8242	.8596	.8837	.8951	.9051
19.90	2.4424	1.7242	1.2143	.9151	.8007	.8234	.8588	.8829	.8943	.9043
29.92	2.4448	1.7272	1.2175	.9192	.8017	.8223	.8566	.8818	.8954	.9033
39.92	2.4514	1.7319	1.2227	.9243	.8057	.8222	.8519	.8806	.8941	.9042
49.88	2.4574	1.7368	1.2276	.9278	.8082	.8248	.8490	.8788	.8946	.9046
59.96	2.4601	1.7451	1.2310	.9300	.8093	.8249	.8456	.8745	.8925	.9037
69.95	2.4543	1.7462	1.2286	.9264	.8081	.8236	.8423	.8676	.8889	.9022
80.06	2.4526	1.7510	1.2313	.9243	.8067	.8243	.8430	.8640	.8864	.9021
89.96	2.4594	1.7535	1.2334	.9240	.8064	.8261	.8437	.8614	.8871	.9060
100.04	2.4602	1.7571	1.2327	.9233	.8056	.8253	.8462	.8639	.8919	.9095
110.00	2.4562	1.7539	1.2287	.9216	.8030	.8215	.8468	.8677	.8957	.9089
119.99	2.4542	1.7491	1.2246	.9218	.8021	.8195	.8481	.8701	.8991	.9122
129.98	2.4511	1.7434	1.2183	.9209	.8023	.8208	.8527	.8724	.9026	.9166
140.01	2.4467	1.7339	1.2097	.9170	.8006	.8211	.8564	.8717	.9019	.9169
149.91	2.4435	1.7283	1.2050	.9136	.7993	.8241	.8595	.8714	.9016	.9176
160.02	2.4420	1.7210	1.2016	.9103	.7991	.8250	.8627	.8691	.9014	.9196
169.89	2.4487	1.7252	1.2055	.9121	.7994	.8295	.8663	.8672	.9041	.9256
180.00	2.4449	1.7227	1.1999	.9040	.7844	.8225	.8567	.8533	.9034	.9248

MODEL 987. CONFIG= 3. ALPHA= 1. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .497 MPA  
MACH NO= 4.00 REL= 6316432. Q= .0366 MPA PTS= .3270E-02 MPA RUN 68 TD= 309.7 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.02	2.6192	1.8484	1.3017	.9753	.8468	.8681	.8961	.9159	.9187	.9257
9.94	2.6239	1.8454	1.2995	.9732	.8457	.8670	.8950	.9148	.9154	.9257
20.02	2.6196	1.8417	1.2976	.9734	.8448	.8650	.8906	.9127	.9134	.9216
29.98	2.6121	1.8344	1.2920	.9722	.8437	.8595	.8827	.9081	.9110	.9183
40.01	2.5992	1.8253	1.2877	.9691	.8416	.8552	.8760	.9048	.9077	.9141
49.97	2.5791	1.8152	1.2790	.9660	.8365	.8488	.8681	.8982	.9011	.9098
59.99	2.5571	1.8065	1.2717	.9579	.8304	.8447	.8605	.8917	.8968	.9057
69.98	2.5301	1.7933	1.2594	.9459	.8215	.8376	.8520	.8822	.8895	.9019
79.94	2.4993	1.7753	1.2469	.9330	.8129	.8297	.8446	.8751	.8835	.8994
89.93	2.4679	1.7565	1.2363	.9228	.8048	.8234	.8405	.8708	.8804	.8984
100.04	2.4321	1.7351	1.2199	.9123	.7953	.8126	.8359	.8673	.8791	.8994
110.00	2.3963	1.7132	1.2006	.9010	.7841	.8031	.8304	.8697	.8804	.9006
119.87	2.3680	1.6885	1.1840	.8925	.7777	.7974	.8279	.8727	.8834	.9013
129.92	2.3405	1.6658	1.1688	.8829	.7711	.7906	.8297	.8757	.8852	.9053
139.92	2.3157	1.6438	1.1521	.8741	.7645	.7881	.8316	.8774	.8859	.9069
150.03	2.2925	1.6232	1.1376	.8635	.7591	.7878	.8324	.8760	.8856	.9086
159.99	2.2788	1.6134	1.1303	.8584	.7582	.7901	.8370	.8773	.8866	.9131
169.98	2.2705	1.6061	1.1265	.8547	.7575	.7937	.8397	.8777	.8884	.9178
179.88	2.2603	1.6036	1.1240	.8544	.7573	.7934	.8383	.8774	.8881	.9197



MODEL 987. CONFIG= 3. ALPHA= 2. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .496 MPA  
MACH NO= 4.00 REL= 6342885. Q= .0366 MPA PTS= .3268E-02 MPA RUN 69 TO= 308.5 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-11	2.8069	1.9751	1.3978	1.0425	.9053	.9215	.9429	.9530	.9526	.9564
9.97	2.8097	1.9745	1.3970	1.0406	.9044	.9195	.9431	.9532	.9494	.9566
19.90	2.7956	1.9624	1.3883	1.0354	.8992	.9121	.9319	.9454	.9428	.9470
29.92	2.7697	1.9453	1.3765	1.0303	.8951	.9056	.9229	.9388	.9362	.9396
39.89	2.7358	1.9266	1.3620	1.0216	.8865	.8936	.9092	.9285	.9270	.9297
49.97	2.6910	1.9004	1.3361	1.0020	.8669	.8754	.8880	.9086	.9082	.9117
59.96	2.6419	1.8756	1.3147	.9866	.8567	.8648	.8747	.8977	.8973	.9013
69.89	2.5835	1.8387	1.2901	.9650	.8383	.8489	.8570	.8812	.8831	.8876
79.94	2.5159	1.7960	1.2581	.9374	.8148	.8278	.8394	.8616	.8668	.8752
89.96	2.4515	1.7572	1.2318	.9174	.7980	.8125	.8280	.8513	.8588	.8696
100.01	2.3851	1.7127	1.2003	.8965	.7793	.7963	.8155	.8423	.8531	.8673
110.00	2.3246	1.6639	1.1640	.8720	.7589	.7784	.8046	.8437	.8556	.8697
119.99	2.2703	1.6255	1.1419	.8600	.7490	.7681	.8017	.8464	.8594	.8712
129.89	2.2157	1.5880	1.1158	.8453	.7396	.7626	.8027	.8518	.8636	.8764
140.01	2.1612	1.5528	1.0934	.8313	.7308	.7578	.8066	.8578	.8675	.8822
150.00	2.1252	1.5239	1.0749	.8217	.7273	.7584	.8117	.8630	.8726	.8882
159.90	2.0908	1.5047	1.0623	.8139	.7247	.7611	.8146	.8646	.8765	.8919
170.04	2.0795	1.4942	1.0533	.8094	.7224	.7641	.8176	.8676	.8795	.8948
180.00	2.0684	1.4927	1.0483	.7983	.7020	.7515	.8067	.8535	.8721	.8887

MODEL 987. CONFIG= 3. ALPHA= 4. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .496 MPA  
MACH NO= 4.00 REL= 6392104. Q= .0365 MPA PTS= .3267E-02 MPA RUN 70 TO= 308.3 K

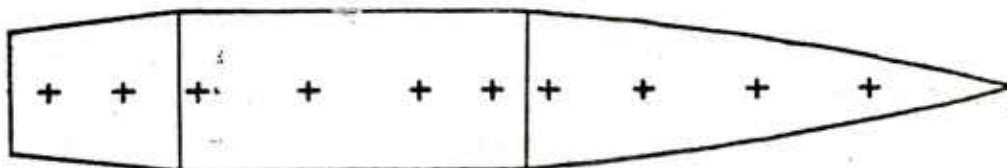
PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-02	3.2072	2.2831	1.6090	1.2018	1.0409	1.0474	1.0525	1.0584	1.0449	1.0485
9.67	3.2104	2.2741	1.6034	1.1956	1.0359	1.0412	1.0471	1.0519	1.0385	1.0413
19.93	3.1642	2.2473	1.5842	1.1807	1.0202	1.0239	1.0291	1.0330	1.0208	1.0199
29.80	3.0993	2.2060	1.5518	1.1580	1.0006	1.0004	1.0012	1.0075	.9964	.9924
39.98	3.0167	2.1466	1.5064	1.1217	.9655	.9662	.9620	.9687	.9589	.9521
49.97	2.9197	2.0788	1.4615	1.0879	.9358	.9354	.9276	.9357	.9250	.9196
59.96	2.8060	1.9959	1.4007	1.0380	.8933	.8957	.8861	.8890	.8817	.8760
69.98	2.6734	1.9040	1.3313	.9777	.8395	.8442	.8334	.8357	.8296	.8240
79.94	2.5441	1.8246	1.2738	.9349	.8049	.8084	.8015	.8007	.7959	.7928
89.96	2.4186	1.7315	1.2093	.8896	.7649	.7711	.7670	.7677	.7663	.7655
100.04	2.3104	1.6403	1.1451	.8457	.7285	.7345	.7354	.7453	.7484	.7578
110.00	2.1985	1.5607	1.0940	.8152	.7041	.7125	.7202	.7391	.7489	.7668
119.99	2.0890	1.4833	1.0444	.7821	.6784	.6912	.7170	.7570	.7723	.7934
130.08	1.9575	1.4206	1.0046	.7597	.6665	.6863	.7298	.7819	.7992	.8203
140.13	1.9354	1.3744	.9794	.7469	.6629	.6912	.7484	.8059	.8243	.8433
150.09	1.8780	1.3348	.9568	.7389	.6622	.6990	.7633	.8239	.8433	.8604
160.02	1.8580	1.3155	.9445	.7352	.6647	.7081	.7784	.8389	.8583	.8737
170.01	1.8257	1.3003	.9340	.7315	.6642	.7128	.7844	.8448	.8664	.8825
180.00	1.7936	1.2991	.9306	.7262	.6537	.7074	.7798	.8391	.8618	.8760

MODEL 987. CONFIG= 3. ALPHA= 6. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .496 MPA  
MACH NO= 4.00 REL= 6343121. Q= .0365 MPA PTS= .3266E-02 MPA RUN 71 TO= 308.5 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.02	3.6185	2.6404	1.8596	1.3954	1.2081	1.2046	1.1989	1.1946	1.1752	1.1776
9.97	3.6014	2.6258	1.8496	1.3848	1.1986	1.1937	1.1886	1.1833	1.1639	1.1647
19.87	3.5364	2.5745	1.8100	1.3491	1.1620	1.1612	1.1479	1.1396	1.1215	1.1155
29.89	3.4401	2.4950	1.7498	1.3025	1.1175	1.1128	1.0951	1.0850	1.0682	1.0581
39.98	3.2995	2.3822	1.6648	1.2304	1.0498	1.0449	1.0196	1.0080	.9937	.9760
50.00	3.1310	2.2504	1.5644	1.1476	.9755	.9722	.9425	.9272	.9142	.8934
59.96	2.9539	2.1337	1.4870	1.0861	.9245	.9205	.8895	.8713	.8563	.8369
69.98	2.7665	1.9778	1.3736	.9918	.8378	.8338	.6023	.7793	.7646	.7426
79.94	2.5550	1.8124	1.2535	.9016	.7602	.7556	.7236	.6994	.6839	.6609
90.05	2.3694	1.6893	1.1755	.8497	.7199	.7116	.6857	.6594	.6418	.6227
100.01	2.1986	1.5599	1.0880	.7930	.6738	.6629	.6393	.6167	.5993	.5851
110.00	2.0442	1.4365	.9963	.7280	.6174	.6151	.6040	.6073	.6097	.6290
119.99	1.8924	1.3190	.9239	.6836	.5917	.5981	.6175	.6606	.6838	.7149
129.89	1.8051	1.2676	.8937	.6701	.5886	.6013	.6387	.6938	.7225	.7477
140.01	1.7098	1.2115	.8625	.6651	.5969	.6228	.6847	.7449	.7657	.7807
150.00	1.6419	1.1786	.8487	.6674	.6095	.6466	.7174	.7762	.7925	.8032
159.90	1.6070	1.1548	.8436	.6759	.6263	.6714	.7490	.8064	.8215	.8332
169.89	1.5808	1.1456	.8424	.6820	.6344	.6809	.7634	.8229	.8412	.8563
179.97	1.5825	1.1510	.8491	.6884	.6398	.6897	.7715	.8310	.8526	.8683

MODEL 987. CONFIG= 3. ALPHA= 10. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .497 MPA  
MACH NO= 4.00 REL= 6368199. Q= .0366 MPA PTS= .3275E-02 MPA RUN 74 TO= 308.3 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.05	4.5999	3.4731	2.4796	1.8763	1.6422	1.6206	1.5890	1.5687	1.5463	1.5567
10.00	4.5696	3.4414	2.4544	1.6543	1.6203	1.5989	1.5676	1.5441	1.5228	1.5321
19.87	4.4631	3.3296	2.3802	1.7926	1.5630	1.5417	1.5045	1.4750	1.4581	1.4638
29.95	4.2457	3.1597	2.2575	1.6947	1.4770	1.4525	1.4080	1.3784	1.3626	1.3627
39.98	3.9842	2.9611	2.0996	1.5662	1.3496	1.3267	1.2786	1.2403	1.2289	1.2167
49.97	3.6720	2.6958	1.9116	1.4125	1.2113	1.1887	1.1346	1.0912	1.0821	1.0653
60.08	3.3196	2.4061	1.7065	1.2515	1.0686	1.0451	.9914	.9385	.9327	.9148
69.95	2.9624	2.1192	1.5041	1.0919	.9290	.9013	.8511	.7906	.7882	.7721
80.03	2.6198	1.8404	1.2989	.9365	.7865	.7547	.7080	.6357	.6411	.6259
90.05	2.3041	1.6025	1.1113	.7876	.6485	.6137	.5663	.4810	.4953	.4830
100.04	1.9955	1.3679	.9535	.6735	.5514	.5152	.4689	.3902	.4122	.4225
110.00	1.7558	1.2026	.8169	.5652	.4568	.4181	.3868	.3749	.4589	.4915
120.02	1.5549	1.0632	.7132	.4944	.4037	.3812	.4184	.4197	.4949	.5240
129.89	1.4134	.9709	.6566	.4682	.4076	.4163	.4494	.4338	.5045	.5300
139.98	1.3162	.9155	.6493	.5090	.4690	.4628	.4846	.4366	.4851	.4860
149.97	1.2596	.9005	.6741	.5556	.5164	.5077	.5225	.4554	.4962	.5061
160.05	1.2370	.9023	.6956	.5865	.5503	.5642	.5917	.5183	.5525	.5632
170.04	1.2320	.9122	.7181	.6123	.5832	.6144	.6920	.6829	.7523	.7769
180.09	1.2541	.9390	.7434	.6355	.6062	.6383	.7327	.7430	.8324	.6653



Configuration 4

MODEL 987. CONFIG= 4. ALPHA= -0. REF A=0.002027 M**2REF L= 0.3084 M PD= .183 MPA										
MACH NO= 2.00 REL= 6541383. Q= .0656 MPA PTS= .2342E-01 MPA RUN 76 TO= 309.0 K										
PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.17	1.3519	1.2565	1.1651	1.0903	.8260	.8545	.0003	.9434	.6920	.7522
9.94	1.3515	1.2565	1.1654	1.0908	.8271	.8547	.0002	.9480	.6925	.7519
19.99	1.3515	1.2562	1.1659	1.0908	.8279	.8535	.0002	.9465	.6897	.7507
29.95	1.3515	1.2564	1.1665	1.0911	.8285	.8518	.0002	.9442	.6898	.7497
39.95	1.3513	1.2565	1.1666	1.0903	.8294	.8518	.0002	.9434	.6897	.7479
49.85	1.3517	1.2565	1.1664	1.0906	.8275	.8625	.0005	.9441	.6869	.7466
59.96	1.3512	1.2553	1.1643	1.0892	.8234	.8731	.0002	.9435	.6842	.7463
69.92	1.3505	1.2542	1.1635	1.0890	.8214	.8681	.0002	.9417	.6823	.7466
79.79	1.3503	1.2534	1.1626	1.0890	.8207	.8679	0.0000	.9446	.6815	.7475
89.90	1.3496	1.2523	1.1607	1.0889	.8195	.8689	.0002	.9432	.6811	.7476
99.89	1.3496	1.2526	1.1592	1.0883	.8200	.8675	.0002	.9425	.6822	.7484
109.97	1.3498	1.2528	1.1585	1.0872	.8220	.8688	.0002	.9426	.6843	.7503
119.87	1.3501	1.2513	1.1564	1.0856	.8239	.8703	.0002	.9433	.6869	.7513
129.86	1.3500	1.2503	1.1593	1.0849	.8249	.8574	.0002	.9439	.6892	.7521
140.01	1.3505	1.2509	1.1596	1.0836	.8243	.8505	0.0000	.9446	.6915	.7532
150.00	1.3501	1.2514	1.1594	1.0826	.8228	.8511	.0002	.9446	.6936	.7543
159.87	1.3496	1.2504	1.1603	1.0818	.8224	.8521	0.0000	.9457	.6945	.7549
169.86	1.3498	1.2500	1.1606	1.0826	.8214	.8518	.0002	.9454	.6944	.7553
179.94	1.3508	1.2501	1.1602	1.0836	.8203	.8512	.0002	.9447	.6941	.7553

MODEL 987. CONFIG= 4. ALPHA= 1. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .183 MPA  
MACH NO= 2.00 REL= 6546024. Q= .0655 MPA PTS= .2339E-01 MPA RUN 77 TO= 308.5 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.05	1.3897	1.2900	1.1966	1.1169	.8462	.8696	.0005	.9491	.6891	.7423
9.85	1.3884	1.2896	1.1963	1.1173	.8472	.8693	.0005	.9496	.6896	.7420
19.87	1.3868	1.2882	1.1957	1.1165	.8472	.8679	.0003	.9489	.6874	.7412
29.98	1.3841	1.2847	1.1923	1.1140	.8456	.8645	.0003	.9462	.6871	.7403
39.95	1.3807	1.2787	1.1901	1.1094	.8436	.8611	.0005	.9450	.6869	.7396
49.94	1.3754	1.2735	1.1834	1.1059	.8387	.8684	.0005	.9446	.6839	.7364
59.96	1.3693	1.2688	1.1776	1.1014	.8325	.8797	.0003	.9435	.6814	.7388
69.95	1.3629	1.2632	1.1725	1.0967	.8270	.8735	.0005	.9413	.6798	.7405
80.03	1.3562	1.2560	1.1658	1.0915	.8228	.8685	.0003	.9385	.6784	.7423
85.84	1.3500	1.2509	1.1600	1.0878	.8192	.8679	.0003	.9370	.6785	.7454
100.01	1.3430	1.2451	1.1529	1.0823	.8166	.8649	.0003	.9356	.6799	.7488
109.97	1.3376	1.2389	1.1485	1.0772	.8160	.8642	.0003	.9358	.6831	.7532
119.87	1.3323	1.2322	1.1443	1.0729	.8160	.8659	.0003	.9365	.6867	.7572
129.74	1.3281	1.2268	1.1424	1.0703	.8150	.8538	.0005	.9363	.6907	.7608
139.92	1.3241	1.2236	1.1403	1.0663	.8136	.8443	.0003	.9401	.6944	.7642
149.91	1.3197	1.2228	1.1368	1.0634	.8108	.8430	.0003	.9410	.6977	.7670
159.99	1.3171	1.2206	1.1365	1.0606	.8088	.8435	.0003	.9425	.7001	.7695
169.98	1.3157	1.2197	1.1362	1.0620	.8075	.8435	.0005	.9436	.7007	.7710
179.97	1.3166	1.2199	1.1360	1.0622	.8062	.8426	.0005	.9434	.7009	.7715

MODEL 987. CONFIG= 4. ALPHA= 2. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .183 MPA  
MACH NO= 2.00 REL= 6525385. Q= .0654 MPA PTS= .2336E-01 MPA RUN 78 TO= 308.9 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.11	1.4276	1.3262	1.2289	1.1454	.8675	.8867	.0019	.9566	.6879	.7329
9.94	1.4259	1.3244	1.2277	1.1449	.8677	.8859	.0020	.9547	.6880	.7327
19.90	1.4214	1.3174	1.2251	1.1418	.8662	.8832	.0020	.9529	.6844	.7311
29.86	1.4154	1.3133	1.2181	1.1360	.8621	.8782	.0019	.9492	.6840	.7296
39.80	1.4071	1.3038	1.2099	1.1278	.8560	.8713	.0017	.9456	.6826	.7280
49.97	1.3953	1.2941	1.1992	1.1199	.8477	.8725	.0019	.9431	.6787	.7253
59.93	1.3824	1.2834	1.1892	1.1104	.8386	.8807	.0019	.9395	.6749	.7246
69.83	1.3680	1.2700	1.1775	1.1009	.8298	.8758	.0019	.9357	.6722	.7260
79.91	1.3539	1.2565	1.1657	1.0914	.8219	.8655	.0017	.9312	.6702	.7295
89.90	1.3409	1.2457	1.1543	1.0829	.8151	.8617	.0020	.9282	.6705	.7348
100.01	1.3286	1.2341	1.1437	1.0740	.8106	.8574	.0019	.9270	.6727	.7412
109.97	1.3181	1.2234	1.1352	1.0652	.8079	.8547	.0017	.9273	.6775	.7492
119.96	1.3096	1.2154	1.1292	1.0594	.8063	.8557	.0017	.9298	.6834	.7575
129.86	1.3023	1.2075	1.1246	1.0540	.8038	.8449	.0017	.9330	.6899	.7642
139.89	1.2955	1.2009	1.1205	1.0491	.8014	.8349	.0019	.9373	.6959	.7709
150.00	1.2906	1.1968	1.1173	1.0453	.7990	.8329	.0017	.9407	.7019	.7767
160.02	1.2856	1.1921	1.1152	1.0436	.7965	.8328	.0019	.9430	.7053	.7807
169.98	1.2826	1.1928	1.1141	1.0428	.7953	.8330	.0017	.9453	.7069	.7833
179.97	1.2843	1.1922	1.1134	1.0434	.7947	.8331	.0017	.9461	.7076	.7845



MODEL 987. CONFIG= 4. ALPHA= 4. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .183 MPA  
MACH NO= 2.00 REL= 6520630. O= .0654 MPA PTS= .2338E-01 MPA RUN 81 TO= 309.2 K

PH1	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-2.23	1.5178	1.3998	1.2948	1.2081	.9117	.9249	.0031	.9761	.6923	.7205
9.91	1.5154	1.3943	1.2914	1.2052	.9102	.9236	.0031	.9695	.6890	.7191
19.84	1.5027	1.3835	1.2822	1.1963	.9039	.9168	.0033	.9625	.6805	.7145
29.98	1.4836	1.3690	1.2671	1.1832	.8926	.9047	.0033	.9521	.6791	.7076
39.95	1.4611	1.3484	1.2481	1.1657	.8773	.8890	.0033	.9394	.6718	.6999
49.97	1.4389	1.3239	1.2243	1.1459	.8616	.8737	.0031	.9278	.6624	.6907
60.05	1.4131	1.2974	1.1989	1.1235	.8420	.8710	.0031	.9147	.6520	.6830
69.92	1.3812	1.2707	1.1744	1.1013	.8238	.8671	.0030	.9031	.6441	.6798
79.91	1.3502	1.2440	1.1493	1.0793	.8069	.8465	.0031	.8928	.6387	.6820
90.02	1.3234	1.2186	1.1276	1.0610	.7931	.8340	.0030	.8865	.6379	.6921
100.01	1.2986	1.1966	1.1085	1.0443	.7839	.8264	.0028	.8849	.6427	.7086
109.88	1.2768	1.1786	1.0943	1.0304	.7776	.8208	.0028	.8881	.6524	.7283
119.87	1.2593	1.1650	1.0848	1.0214	.7746	.8207	.0028	.8969	.6668	.7480
129.86	1.2457	1.1537	1.0785	1.0149	.7730	.8162	.0028	.9083	.6817	.7652
140.01	1.2321	1.1469	1.0748	1.0113	.7721	.8089	.0028	.9200	.6959	.7796
150.03	1.2206	1.1432	1.0709	1.0099	.7720	.8076	.0027	.9292	.7073	.7910
159.93	1.2177	1.1391	1.0688	1.0096	.7710	.8098	.0028	.9373	.7147	.7998
170.04	1.2153	1.1373	1.0668	1.0087	.7715	.8125	.0025	.9416	.7184	.8054
180.15	1.2149	1.1377	1.0663	1.0087	.7714	.8144	.0028	.9436	.7198	.8076

MODEL 987. CONFIG= 4. ALPHA= 6. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .183 MPA  
MACH NO= 2.00 REL= 6520867. O= .0654 MPA PTS= .2335E-01 MPA RUN 82 TO= 309.0 K

PH1	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-1.17	1.6244	1.4952	1.3723	1.2783	.9671	.9757	.0012	1.0162	.7079	.7240
9.91	1.6191	1.4867	1.3655	1.2730	.9623	.9720	.0012	1.0009	.7000	.7206
19.93	1.5955	1.4654	1.3476	1.2569	.9498	.9595	.0011	.9867	.6874	.7094
29.95	1.5659	1.4370	1.3212	1.2336	.9302	.9379	.0011	.9670	.6795	.6932
39.95	1.5327	1.4015	1.2878	1.2014	.9052	.9110	.0011	.9423	.6617	.6744
49.94	1.4865	1.3584	1.2484	1.1655	.8759	.8808	.0011	.9157	.6403	.6522
59.99	1.4448	1.3120	1.2056	1.1274	.8439	.8596	.0011	.8879	.6191	.6306
69.92	1.3948	1.2680	1.1639	1.0882	.8129	.8460	.0011	.8620	.6010	.6147
79.67	1.3458	1.2261	1.1263	1.0529	.7860	.8192	.0011	.8429	.5878	.6086
89.93	1.2996	1.1868	1.0909	1.0220	.7623	.7952	.0011	.8320	.5841	.6222
100.01	1.2616	1.1548	1.0641	.9972	.7474	.7833	.0013	.8324	.5929	.6594
109.97	1.2310	1.1302	1.0462	.9803	.7398	.7777	.0009	.8480	.6139	.7030
119.87	1.2127	1.1136	1.0355	.9712	.7373	.7799	.0013	.8642	.6436	.7369
129.74	1.1956	1.1032	1.0295	.9691	.7395	.7865	.0011	.8894	.6733	.7605
139.95	1.1797	1.0979	1.0272	.9701	.7441	.7874	.0009	.9131	.6957	.7772
150.00	1.1717	1.0974	1.0282	.9731	.7487	.7910	.0009	.9300	.7094	.7894
159.90	1.1677	1.0979	1.0292	.9760	.7532	.7973	.0009	.9421	.7188	.8020
170.01	1.1712	1.0974	1.0312	.9769	.7554	.8032	.0009	.9520	.7255	.8153
179.97	1.1709	1.0983	1.0310	.9775	.7558	.8079	.0009	.9561	.7278	.8203

MOOEL 987. CONFIG= 4. ALPHA= 10. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .183 MPA  
MACH NO= 2.00 REL= 6525760. Q= .0654 MPA PTS= .2335E-01 MPA RUN 83 TO= 308.9 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
.04	1.8636	1.7041	1.5602	1.4572	1.1041	1.1074	.0008	1.1201	.7742	.7730
10.06	1.8445	1.6866	1.5438	1.4436	1.0937	1.0958	.0008	1.0957	.7607	.7633
19.99	1.8038	1.6462	1.5059	1.4088	1.0664	1.0682	.0009	1.0655	.7330	.7372
30.11	1.7412	1.5868	1.4489	1.3568	1.0235	1.0229	.0006	1.0158	.7029	.6972
40.10	1.6680	1.5111	1.3784	1.2891	.9685	.9654	.0006	.9575	.6599	.6478
50.09	1.5729	1.4245	1.2974	1.2122	.9054	.9001	.0005	.8884	.6063	.5906
60.08	1.4832	1.3335	1.2125	1.1288	.8393	.8297	.0006	.8150	.5502	.5284
70.01	1.3860	1.2425	1.1272	1.0464	.7749	.7720	.0005	.7448	.4951	.4673
80.03	1.2908	1.1564	1.0477	.9694	.7149	.7226	.0006	.6783	.4451	.4136
90.14	1.2097	1.0841	.9818	.9056	.6662	.6774	.0006	.6255	.4076	.4366
100.13	1.1487	1.0292	.9343	.8609	.6361	.6474	.0006	.6098	.4246	.5990
110.09	1.1048	.9955	.9071	.8407	.6257	.6414	.0005	.6841	.5484	.6353
120.08	1.0776	.9824	.9006	.8437	.6325	.6611	.0006	.7839	.6267	.6488
130.14	1.0618	.9848	.9108	.8604	.6516	.6997	.0005	.8297	.6531	.6790
140.04	1.0623	.9963	.9307	.8846	.6770	.7337	.0006	.8468	.6572	.6842
150.12	1.0685	1.0101	.9498	.9072	.7028	.7566	.0006	.8567	.6511	.6725
160.11	1.0809	1.0231	.9636	.9215	.7234	.7705	.0005	.8779	.6593	.7014
170.13	1.0849	1.0318	.9725	.9300	.7283	.7844	.0005	.9277	.6984	.7893
180.06	1.0881	1.0331	.9752	.9335	.7188	.7955	.0008	.9594	.6876	.8243

MODEL 987. CONFIG= 4. ALPHA= 0. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .298 MPA  
MACH NO= 3.00 REL= 6404118. Q= .0512 MPA PTS= .8125E-02 MPA RUN 84 TO= 309.9 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.14	1.6874	1.4673	1.2923	1.1587	.8095	.8043	.0013	.8904	.5680	.6119
9.97	1.6862	1.4671	1.2921	1.1581	.8089	.8050	.0013	.8912	.5675	.6119
19.96	1.6859	1.4672	1.2926	1.1569	.8092	.8044	.0018	.8915	.5681	.6121
30.02	1.6839	1.4671	1.2934	1.1569	.8094	.8037	.0013	.8921	.5684	.6106
39.98	1.6832	1.4674	1.2949	1.1566	.8097	.8037	.0018	.8934	.5686	.6100
50.00	1.6826	1.4676	1.2956	1.1565	.8097	.8040	.0013	.8942	.5690	.6091
59.99	1.6821	1.4680	1.2960	1.1610	.8105	.8044	.0018	.8955	.5694	.6083
69.98	1.6818	1.4690	1.2958	1.1645	.8118	.8054	.0013	.8961	.5695	.6083
79.85	1.6809	1.4707	1.2954	1.1667	.8137	.8065	.0013	.8954	.5703	.6082
89.93	1.6795	1.4707	1.2959	1.1680	.8150	.8065	.0013	.8950	.5707	.6082
100.01	1.6771	1.4699	1.2959	1.1684	.8158	.8065	.0013	.8936	.5703	.6090
110.00	1.6742	1.4694	1.2966	1.1670	.8160	.8084	.0013	.8939	.5704	.6096
120.02	1.6711	1.4679	1.2943	1.1648	.8152	.8089	.0009	.8930	.5684	.6097
129.89	1.6696	1.4671	1.2946	1.1634	.8145	.8099	.0013	.8919	.5680	.6112
139.92	1.6677	1.4659	1.2943	1.1614	.8143	.8115	.0009	.8903	.5670	.6123
150.00	1.6662	1.4666	1.2951	1.1598	.8141	.8125	.0009	.8891	.5668	.6129
160.02	1.6663	1.4671	1.2947	1.1598	.8143	.8132	.0013	.8885	.5675	.6136
169.95	1.6663	1.4667	1.2934	1.1606	.8152	.8123	.0009	.8885	.5675	.6136
180.03	1.6665	1.4677	1.2936	1.1616	.8153	.8133	.0009	.8882	.5675	.6132

MODEL 987. CONFIG= 4. ALPHA= 1. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .298 MPA  
MACH NO= 3.00 REL= 6389406. Q= .0511 MPA PTS= .8126E-02 MPA RUN 85 TO= 310.4 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.08	1.7742	1.5416	1.3547	1.2121	.8404	.8337	.0013	.9068	.5675	.6033
10.03	1.7718	1.5404	1.3526	1.2109	.8396	.8341	.0013	.9063	.5675	.6037
19.96	1.7689	1.5359	1.3486	1.2067	.8379	.8319	.0013	.9054	.5679	.6029
30.08	1.7595	1.5290	1.3434	1.2021	.8350	.8276	.0013	.9041	.5679	.6012
40.07	1.7511	1.5215	1.3388	1.1956	.8318	.8243	.0009	.9029	.5671	.6000
50.06	1.7410	1.5112	1.3295	1.1900	.8271	.8203	.0009	.9001	.5666	.5986
70.04	1.7164	1.4902	1.3093	1.1793	.8191	.8124	.0013	.8950	.5656	.5981
80.03	1.6996	1.4795	1.3007	1.1736	.8158	.8077	.0013	.8929	.5656	.5986
90.05	1.6808	1.4667	1.2909	1.1654	.8114	.8035	.0013	.8894	.5666	.6003
100.10	1.6628	1.4546	1.2809	1.1571	.8072	.7992	.0013	.8868	.5670	.6020
110.06	1.6451	1.4419	1.2712	1.1473	.8026	.7961	.0009	.8853	.5674	.6045
120.05	1.6231	1.4304	1.2624	1.1380	.7983	.7926	.0009	.8839	.5678	.6066
129.95	1.6094	1.4211	1.2550	1.1309	.7941	.7903	.0004	.8815	.5684	.6102
140.01	1.5986	1.4139	1.2495	1.1248	.7914	.7901	.0004	.8804	.5687	.6139
149.97	1.5941	1.4088	1.2445	1.1204	.7890	.7893	.0009	.8792	.5697	.6165
159.96	1.5911	1.4051	1.2404	1.1186	.7888	.7891	.0004	.8794	.5721	.6175
170.01	1.5883	1.4006	1.2359	1.1164	.7878	.7873	.0004	.8788	.5723	.6172
180.06	1.5859	1.4018	1.2362	1.1171	.7880	.7875	.0004	.8786	.5724	.6169

MODEL 987. CONFIG= 4. ALPHA= 2. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .298 MPA  
MACH NO= 3.00 REL= 6391734. O= .0512 MPA PTS= .8125E-02 MPA RUN 86 TO= 310.3 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.02	1.8642	1.6205	1.4215	1.2681	.8756	.8670	.0004	.9282	.5711	.6011
10.00	1.8601	1.6170	1.4179	1.2646	.8743	.8660	.0004	.9272	.5705	.5998
19.87	1.8521	1.6081	1.4092	1.2584	.8701	.8617	.0004	.9232	.5692	.5977
29.92	1.8426	1.5936	1.3979	1.2471	.8631	.8540	.0009	.9183	.5674	.5943
39.89	1.8283	1.5766	1.3844	1.2337	.8546	.8456	.0004	.9123	.5645	.5901
50.60	1.8027	1.5555	1.3657	1.2204	.8442	.8357	.0009	.9043	.5605	.5863
59.67	1.7740	1.5323	1.3450	1.2055	.8343	.8259	.0004	.8964	.5570	.5821
69.98	1.7440	1.5083	1.3233	1.1897	.8241	.8153	.0009	.8885	.5537	.5802
79.85	1.7089	1.4820	1.3020	1.1718	.8133	.8037	.0004	.8800	.5523	.5811
89.93	1.6754	1.4575	1.2818	1.1553	.8043	.7943	.0009	.8739	.5528	.5837
99.86	1.6399	1.4320	1.2614	1.1369	.7935	.7844	.0004	.8695	.5555	.5892
110.00	1.6052	1.4086	1.2431	1.1211	.7856	.7784	.0004	.8672	.5577	.5943
119.99	1.5716	1.3900	1.2279	1.1061	.7781	.7724	.0004	.8668	.5613	.6016
129.89	1.5468	1.3750	1.2153	1.0949	.7715	.7694	.0004	.8668	.5662	.6097
139.92	1.5285	1.3609	1.2033	1.0855	.7672	.7675	.0004	.8675	.5709	.6172
150.00	1.5151	1.3511	1.1949	1.0799	.7649	.7668	0.0000	.8690	.5742	.6220
159.96	1.5061	1.3426	1.1884	1.0762	.7646	.7652	0.0000	.8709	.5784	.6252
170.01	1.5075	1.3394	1.1850	1.0741	.7649	.7642	0.0000	.8721	.5808	.6276
179.97	1.5097	1.3392	1.1840	1.0740	.7644	.7650	.0004	.8716	.5808	.6275

MODEL 987. CONFIG= 4. ALPHA= 4. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .298 MPA  
MACH NO= 3.00 REL= 6381163. O= .0511 MPA PTS= .8107E-02 MPA RUN 87 TO= 310.1 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.02	2.0718	1.8045	1.5781	1.4061	.9625	.9505	.0059	.9905	.5973	.6170
9.85	2.0630	1.7941	1.5696	1.3987	.9584	.9463	.0054	.9866	.5943	.6124
19.87	2.0397	1.7714	1.5483	1.3813	.9461	.9344	.0059	.9752	.5870	.6037
30.02	2.0055	1.7378	1.5188	1.3558	.9287	.9159	.0059	.9578	.5772	.5918
39.89	1.9575	1.6993	1.4831	1.3256	.9085	.8941	.0054	.9371	.5649	.5765
49.79	1.9010	1.6507	1.4379	1.2882	.8809	.8672	.0059	.9097	.5460	.5555
59.96	1.8336	1.5912	1.3679	1.2418	.8484	.8344	.0059	.8776	.5265	.5346
69.98	1.7702	1.5383	1.3451	1.2052	.8273	.8125	.0054	.8559	.5163	.5248
79.94	1.7070	1.4824	1.2977	1.1651	.8024	.7862	.0054	.8331	.5061	.5160
89.96	1.6438	1.4290	1.2529	1.1254	.7787	.7621	.0054	.8149	.5016	.5218
99.95	1.5821	1.3828	1.2125	1.0899	.7579	.7427	.0054	.8055	.5052	.5351
110.00	1.5273	1.3417	1.1789	1.0598	.7420	.7301	.0054	.8063	.5167	.5576
119.90	1.4853	1.3059	1.1518	1.0379	.7299	.7227	.0054	.8156	.5349	.5853
129.89	1.4545	1.2792	1.1318	1.0233	.7236	.7218	.0054	.8267	.5513	.6032
140.04	1.4307	1.2574	1.1166	1.0137	.7220	.7236	.0050	.8405	.5705	.6224
150.03	1.4131	1.2440	1.1070	1.0087	.7232	.7261	.0050	.8517	.5838	.6331
159.90	1.3937	1.2355	1.1005	1.0062	.7261	.7283	.0050	.8619	.5963	.6420
169.89	1.3782	1.2320	1.0967	1.0059	.7287	.7305	.0050	.8678	.6030	.6464
179.97	1.3718	1.2322	1.0957	1.0066	.7299	.7313	.0054	.8690	.6052	.6467



MODEL 987. CONFIG= 4. ALPHA= 6. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .298 MPA  
MACH NO= 3.00 REL= 6383398. Q= .0511 MPA PTS= .8114E-02 MPA RUN 88 TO= 310.3 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-.05	2.2880	2.0148	1.7504	1.5638	1.0675	1.0517	.0058	1.0743	.6421	.6540
9.94	2.2746	1.9957	1.7354	1.5506	1.0592	1.0422	.0063	1.0666	.6357	.6461
20.02	2.2346	1.9571	1.7011	1.5202	1.0382	1.0213	.0058	1.0441	.6226	.6310
29.92	2.1682	1.9016	1.6520	1.4780	1.0074	.9890	.0058	1.0107	.6017	.6063
39.98	2.0919	1.8314	1.5879	1.4210	.9676	.9487	.0054	.9686	.5738	.5735
50.06	1.9948	1.7437	1.5135	1.3541	.9206	.9003	.0063	.9173	.5390	.5334
60.05	1.8860	1.6509	1.4340	1.2819	.8728	.8517	.0054	.8634	.5057	.4954
70.07	1.7761	1.5547	1.3526	1.2083	.8249	.8000	.0054	.8086	.4714	.4566
80.00	1.6739	1.4644	1.2743	1.1381	.7782	.7524	.0058	.7594	.4412	.4256
90.05	1.5775	1.3825	1.2026	1.0734	.7362	.7115	.0058	.7184	.4212	.4132
100.01	1.4975	1.3115	1.1429	1.0190	.7025	.6800	.0058	.6956	.4185	.4362
109.97	1.4282	1.2524	1.0947	.9781	.6764	.6606	.0058	.6696	.4452	.5023
119.96	1.3753	1.2052	1.0589	.9521	.6663	.6537	.0054	.7294	.4647	.5461
130.05	1.3400	1.1735	1.0383	.9390	.6648	.6616	.0058	.7678	.5253	.5786
140.01	1.3162	1.1541	1.0262	.9361	.6727	.6745	.0058	.8012	.5573	.6021
150.06	1.2909	1.1426	1.0221	.9389	.6842	.6869	.0054	.8251	.5786	.6174
159.99	1.2678	1.1391	1.0214	.9448	.6943	.6969	.0054	.8448	.5969	.6298
170.01	1.2531	1.1383	1.0228	.9487	.6990	.7022	.0054	.8579	.6100	.6407
179.94	1.2493	1.1387	1.0231	.9503	.7001	.7042	.0054	.8626	.6138	.6430

MODEL 987. CONFIG= 4. ALPHA= 10. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .298 MPA  
MACH NO= 3.00 REL= 6382081. Q= .0512 MPA PTS= .8114E-02 MPA RUN 91 TO= 310.4 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
.07	2.7913	2.5083	2.1795	1.9529	1.3410	1.3158	.0117	1.3111	.7874	.7692
10.12	2.7578	2.4736	2.1510	1.9272	1.3238	1.2958	.0117	1.2936	.7758	.7755
20.11	2.6789	2.3942	2.0848	1.8669	1.2796	1.2507	.0117	1.2461	.7447	.7419
30.02	2.5602	2.2772	1.9842	1.7737	1.2123	1.1826	.0117	1.1743	.6992	.6918
40.10	2.3911	2.1252	1.8508	1.6531	1.1270	1.0954	.0121	1.0803	.6384	.6236
50.09	2.2091	1.9511	1.6993	1.5148	1.0320	.9968	.0117	.9757	.5687	.5490
60.08	2.0011	1.7713	1.5390	1.3676	.9302	.8920	.0117	.8647	.4966	.4728
70.07	1.8050	1.5883	1.3768	1.2177	.8274	.7853	.0117	.7486	.4240	.3936
80.15	1.6203	1.4122	1.2211	1.0736	.7255	.6848	.0117	.6350	.3568	.3270
90.05	1.4501	1.2544	1.0816	.9444	.6359	.5934	.0117	.5250	.2972	.3607
100.13	1.3048	1.1212	.9642	.8366	.5631	.5162	.0122	.4381	.3066	.4017
110.12	1.1852	1.0220	.8782	.7608	.5123	.4669	.0117	.3956	.3274	.4080
120.11	1.1124	.9640	.8303	.7249	.4953	.4593	.0126	.5254	.3409	.3681
130.02	1.0783	.9414	.8240	.7326	.5155	.5061	.0117	.6069	.4230	.3697
140.10	1.0688	.9483	.8489	.7740	.5644	.5706	.0122	.6484	.4525	.4235
150.03	1.0731	.9665	.8807	.8183	.6109	.6133	.0117	.6698	.4739	.4380
160.02	1.0735	.9806	.8999	.8417	.6378	.6329	.0117	.6915	.4965	.4696
170.16	1.0826	.9937	.9142	.8584	.6471	.6495	.0117	.7857	.5370	.5810
180.12	1.0850	.9965	.9169	.8610	.6419	.6523	.0117	.8233	.5484	.6039

MODEL 987. CONFIG= 4. ALPHA= 0. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .496 MPA  
MACH NO= 4.00 REL= 6291249. Q= .0367 MPA PTS= .3268E-02 MPA RUN 93 TD= 310.3 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.05	2.0939	1.7783	1.5050	1.3051	.8687	.7974	.0134	.8736	.5250	.5146
9.97	2.0953	1.7785	1.5049	1.3049	.8692	.7979	.0123	.8742	.5242	.5160
19.81	2.0992	1.7798	1.5073	1.3093	.8714	.7948	.0134	.8732	.5232	.5161
29.89	2.1004	1.7808	1.5084	1.3124	.8725	.7938	.0123	.8732	.5232	.5161
39.98	2.1039	1.7868	1.5127	1.3186	.8756	.7959	.0134	.8710	.5232	.5161
49.85	2.1064	1.7929	1.5173	1.3220	.8762	.7955	.0134	.8673	.5197	.5169
59.96	2.1076	1.7990	1.5195	1.3210	.8772	.7976	.0134	.8651	.5186	.5179
69.95	2.1083	1.8036	1.5210	1.3194	.8775	.8000	.0134	.8631	.5198	.5192
79.94	2.1079	1.8063	1.5208	1.3181	.8763	.7988	.0134	.8608	.5175	.5191
89.75	2.1073	1.8068	1.5214	1.3142	.8744	.7976	.0123	.8607	.5188	.5236
99.89	2.1050	1.8058	1.5203	1.3121	.8713	.7966	.0123	.8652	.5222	.5257
109.97	2.1024	1.8026	1.5160	1.3123	.8707	.7950	.0134	.8701	.5251	.5253
119.96	2.0985	1.7972	1.5082	1.3100	.8695	.7927	.0112	.8755	.5261	.5274
129.86	2.0934	1.7889	1.4993	1.3077	.8683	.7915	.0123	.8776	.5283	.5283
139.98	2.0894	1.7805	1.4912	1.3030	.8676	.7928	.0123	.8778	.5284	.5285
149.97	2.0854	1.7710	1.4885	1.2962	.8658	.7963	.0112	.8770	.5297	.5308
159.87	2.0849	1.7686	1.4868	1.2925	.8651	.7987	.0112	.8762	.5288	.5310
169.86	2.0823	1.7654	1.4837	1.2895	.8594	.7950	.0123	.8701	.5295	.5327
179.94	2.0818	1.7629	1.4777	1.2786	.8267	.7663	.0123	.8383	.5286	.5319

MODEL 987. CONFIG= 4. ALPHA= 1. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .494 MPA  
MACH NO= 4.00 REL= 6258125. Q= .0365 MPA PTS= .3258E-02 MPA RUN 94 TD= 310.7 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-0.02	2.2406	1.9067	1.6112	1.3980	.9240	.8475	.0448	.9068	.5295	.5133
9.88	2.2374	1.9020	1.6082	1.3951	.9231	.8455	.0437	.9058	.5274	.5124
19.96	2.2284	1.8953	1.6044	1.3936	.9218	.8409	.0437	.9022	.5261	.5111
29.92	2.2134	1.8885	1.5960	1.3907	.9188	.8357	.0448	.8979	.5251	.5101
39.98	2.1976	1.8801	1.5893	1.3873	.9166	.8313	.0448	.8933	.5239	.5090
50.00	2.1723	1.8717	1.5811	1.3805	.9117	.8283	.0448	.8892	.5229	.5092
59.99	2.1470	1.8581	1.5682	1.3641	.9033	.8208	.0448	.8791	.5178	.5085
69.98	2.1237	1.8423	1.5533	1.3477	.8941	.8134	.0448	.8693	.5157	.5086
79.94	2.0969	1.8226	1.5348	1.3266	.8819	.8038	.0448	.8594	.5142	.5103
89.96	2.0736	1.8036	1.5181	1.3108	.8707	.7933	.0437	.8541	.5147	.5119
100.04	2.0482	1.7820	1.5013	1.2956	.8606	.7850	.0448	.8511	.5160	.5142
110.00	2.0246	1.7568	1.4775	1.2800	.8503	.7754	.0437	.8533	.5216	.5174
119.99	2.0021	1.7326	1.4569	1.2675	.8451	.7679	.0437	.8555	.5238	.5195
129.95	1.9823	1.7117	1.4377	1.2563	.8390	.7637	.0437	.8568	.5272	.5217
139.92	1.9685	1.6918	1.4217	1.2420	.8340	.7628	.0426	.8569	.5306	.5261
149.91	1.9575	1.6734	1.4085	1.2303	.8287	.7637	.0426	.8568	.5327	.5292
159.90	1.9551	1.6623	1.4020	1.2220	.8266	.7659	.0426	.8545	.5338	.5313
169.98	1.9536	1.6570	1.3963	1.2187	.8275	.7668	.0437	.8544	.5349	.5323
180.00	1.9571	1.6609	1.3960	1.2211	.8274	.7677	.0426	.8565	.5355	.5340

MODEL 987. CONFIG= 4. ALPHA= 2. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .494 MPA  
MACH NO= 4.00 REL= 6257276. O= .0365 MPA PTS= .3256E-02 MPA RUN 95 TO= 310.6 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-11	2.3955	2.0398	1.7188	1.4922	.9779	.8981	.0470	.9468	.5367	.5149
9.76	2.3849	2.0348	1.7143	1.4888	.9773	.8953	.0459	.9451	.5337	.5120
19.90	2.3455	2.0193	1.7012	1.4784	.9674	.8840	.0459	.9323	.5267	.5042
30.05	2.3179	1.9998	1.6834	1.4664	.9584	.8736	.0459	.9226	.5224	.5002
39.98	2.2998	1.9753	1.6626	1.4496	.9469	.8617	.0470	.9092	.5168	.4948
50.00	2.2548	1.9420	1.6331	1.4222	.9297	.8449	.0459	.8906	.5104	.4876
60.02	2.1945	1.8987	1.5963	1.3858	.9101	.8267	.0459	.8720	.5038	.4844
69.89	2.1641	1.8738	1.5749	1.3694	.9030	.8215	.0471	.8666	.5027	.4834
79.94	2.1116	1.8199	1.5300	1.3189	.8692	.7917	.0448	.8403	.4996	.4900
89.96	2.0706	1.7910	1.5053	1.2963	.8569	.7801	.0448	.8326	.4997	.4922
100.04	2.0170	1.7412	1.4628	1.2638	.8361	.7596	.0448	.8247	.5029	.4995
110.00	1.9759	1.7012	1.4273	1.2401	.8217	.7489	.0448	.8238	.5085	.5039
120.02	1.9416	1.6659	1.3992	1.2182	.8114	.7382	.0448	.8260	.5141	.5102
129.89	1.9041	1.6298	1.3680	1.1945	.8001	.7308	.0437	.8295	.5230	.5178
140.01	1.8709	1.6026	1.3474	1.1779	.7949	.7287	.0460	.8328	.5308	.5231
149.91	1.8443	1.5758	1.3297	1.1619	.7905	.7317	.0437	.8347	.5350	.5282
159.90	1.8271	1.5612	1.3182	1.1560	.7939	.7351	.0448	.8372	.5374	.5305
169.89	1.8248	1.5602	1.3182	1.1591	.7980	.7394	.0448	.8406	.5385	.5295
179.97	1.8378	1.5713	1.3279	1.1695	.8053	.7469	.0448	.8439	.5374	.5284

MODEL 987. CONFIG= 4. ALPHA= 4. REF A=0.002027 M\*\*2REF L= 0.3084 M PO= .495 MPA  
MACH NO= 4.00 REL= 6280831. O= .0365 MPA PTS= .3260E-02 MPA RUN 96 TO= 310.2 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-11	2.7649	2.3528	1.9765	1.7188	1.1171	1.0306	.0493	1.0561	.5758	.5493
10.00	2.7537	2.3393	1.9648	1.7064	1.1117	1.0238	.0471	1.0501	.5696	.5433
19.96	2.7028	2.3080	1.9334	1.6825	1.0920	1.0023	.0471	1.0257	.5552	.5241
30.05	2.6409	2.2592	1.8930	1.6500	1.0680	.9796	.0471	1.0023	.5418	.5081
40.01	2.5375	2.1801	1.8266	1.5883	1.0244	.9323	.0482	.9533	.5129	.4761
50.00	2.4433	2.1099	1.7694	1.5363	.9919	.9007	.0460	.9185	.4966	.4616
59.96	2.3277	2.0194	1.6906	1.4606	.9434	.8568	.0482	.8698	.4745	.4425
69.89	2.2173	1.9353	1.6201	1.3940	.9055	.8208	.0471	.8304	.4620	.4326
79.85	2.0932	1.8314	1.5305	1.3091	.8492	.7668	.0471	.7813	.4474	.4292
89.96	1.9466	1.7142	1.4329	1.2268	.8005	.7195	.0470	.7468	.4451	.4387
100.01	1.8705	1.6466	1.3798	1.1873	.7788	.6980	.0470	.7357	.4495	.4472
109.94	1.7957	1.5727	1.3212	1.1392	.7538	.6786	.0470	.7345	.4616	.4641
119.99	1.7343	1.5082	1.2733	1.1015	.7367	.6651	.0471	.7449	.4819	.4836
129.89	1.6698	1.4502	1.2285	1.0720	.7261	.6596	.0471	.7635	.5072	.5036
139.89	1.6169	1.4061	1.1963	1.0514	.7221	.6640	.0471	.7825	.5283	.5217
150.00	1.5944	1.3788	1.1779	1.0410	.7232	.6682	.0471	.7947	.5405	.5324
160.02	1.5837	1.3637	1.1670	1.0369	.7273	.6747	.0471	.8047	.5493	.5366
170.04	1.5765	1.3595	1.1661	1.0412	.7349	.6816	.0470	.8128	.5511	.5394
180.00	1.6193	1.4031	1.2041	1.0757	.7578	.7021	.0470	.8229	.5456	.5320

MODEL 987. CONFIG= 4. ALPHA= 6. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .494 MPA  
MACH NO= 4.00 REL= 6260005. Q= .0365 MPA PTS= .3256E-02 MPA RUN 97 TD= 310.6 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-11	3.1806	2.7174	2.2770	1.9857	1.2886	1.1967	.0493	1.2033	.6399	.6140
9.97	3.1352	2.6958	2.2582	1.9677	1.2760	1.1825	.0493	1.1698	.6266	.6001
19.90	3.0842	2.6302	2.2060	1.9226	1.2402	1.1475	.0493	1.1503	.5980	.5652
30.02	2.9456	2.5312	2.1201	1.8442	1.1858	1.0900	.0493	1.0866	.5638	.5229
39.89	2.7857	2.4240	2.0309	1.7668	1.1375	1.0410	.0493	1.0368	.5352	.4933
50.03	2.6404	2.2870	1.9154	1.6601	1.0668	.9730	.0482	.9611	.4940	.4506
59.99	2.4527	2.1400	1.7903	1.5410	.9909	.8987	.0482	.8799	.4518	.4101
69.92	2.2651	1.9790	1.6577	1.4157	.9079	.6180	.0462	.7932	.4118	.3728
79.76	2.0879	1.8319	1.5336	1.3070	.8433	.7522	.0493	.7263	.3839	.3588
89.96	1.9611	1.6764	1.4020	1.1929	.7676	.6822	.0493	.6561	.3655	.3634
99.89	1.8076	1.5496	1.2950	1.1057	.7160	.6340	.0482	.6175	.3667	.3837
110.00	1.6763	1.4306	1.2011	1.0270	.6732	.5982	.0493	.6104	.3952	.4057
119.90	1.5740	1.3463	1.1344	.9764	.6537	.5866	.0493	.6394	.4330	.4292
129.89	1.4813	1.2794	1.0840	.9467	.6499	.5944	.0482	.6918	.4775	.4666
139.92	1.4494	1.2461	1.0656	.9394	.6551	.6052	.0493	.7240	.5019	.4932
150.00	1.4229	1.2195	1.0501	.9401	.6694	.6232	.0471	.7559	.5272	.5154
159.90	1.4054	1.2116	1.0481	.9445	.6808	.6340	.0482	.7726	.5406	.5293
170.01	1.4009	1.2179	1.0548	.9561	.6923	.6438	.0482	.7905	.5506	.5400
179.97	1.4567	1.2726	1.0994	.9937	.7142	.6621	.0471	.8051	.5552	.5443

MODEL 987. CONFIG= 4. ALPHA= 10. REF A=0.002027 M\*\*2REF L= 0.3084 M PD= .496 MPA  
MACH NO= 4.00 REL= 6338495. Q= .0366 MPA PTS= .3268E-02 MPA RUN \*\* TD= 308.8 K

PHI	PW1/PTS	PW2/PTS	PW3/PTS	PW4/PTS	PW5/PTS	PW6/PTS	PW7/PTS	PW8/PTS	PW9/PTS	PW10/PTS
-17	4.1232	3.5779	3.0244	2.6380	1.7282	1.6261	.0212	1.5934	.8563	.6370
9.91	4.0718	3.5250	2.9796	2.5972	1.7001	1.5991	.0179	1.5655	.8373	.8177
19.84	3.9414	3.3978	2.8745	2.5037	1.6307	1.5272	.0179	1.4922	.7819	.7529
29.98	3.7196	3.2028	2.7107	2.3591	1.5405	1.4306	.0190	1.4022	.7275	.6944
39.95	3.4637	2.9596	2.5032	2.1754	1.4115	1.3043	.0190	1.2958	.6450	.6015
50.03	3.1081	2.6566	2.2514	1.9391	1.2441	1.1405	.0190	1.1163	.5475	.5017
59.93	2.7976	2.3689	2.0148	1.7338	1.1248	1.0233	.0179	.9717	.4946	.4499
70.04	2.4665	2.0696	1.7593	1.5043	.9712	.8727	.0179	.8335	.4084	.3725
80.00	2.1201	1.7896	1.5130	1.2796	.8116	.7127	.0179	.6481	.3251	.3244
89.93	1.8504	1.5336	1.2689	1.0842	.6828	.5846	.0179	.5177	.2686	.3362
99.98	1.5748	1.3047	1.0835	.8992	.5615	.4693	.0168	.4358	.2960	.3434
109.97	1.3775	1.1335	.9381	.7735	.4934	.4107	.0157	.4118	.3099	.3364
119.99	1.2144	1.0107	.8278	.6674	.4510	.4010	.0145	.4594	.3154	.3183
129.86	1.1233	.9541	.7918	.6725	.4617	.4303	.0157	.4664	.3290	.3091
140.01	1.0851	.9478	.8110	.7199	.5194	.4697	.0145	.4795	.3366	.3121
150.00	1.0967	.9567	.8400	.7643	.5606	.5060	.0145	.5038	.3432	.3259
160.02	1.1170	.9740	.8661	.7976	.5907	.5361	.0145	.5670	.3665	.3705
170.04	1.1182	.9911	.8887	.8214	.6010	.5585	.0145	.7243	.4374	.4608
180.00	1.1522	1.0221	.9167	.8409	.5968	.5563	.0134	.7153	.4406	.4618



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